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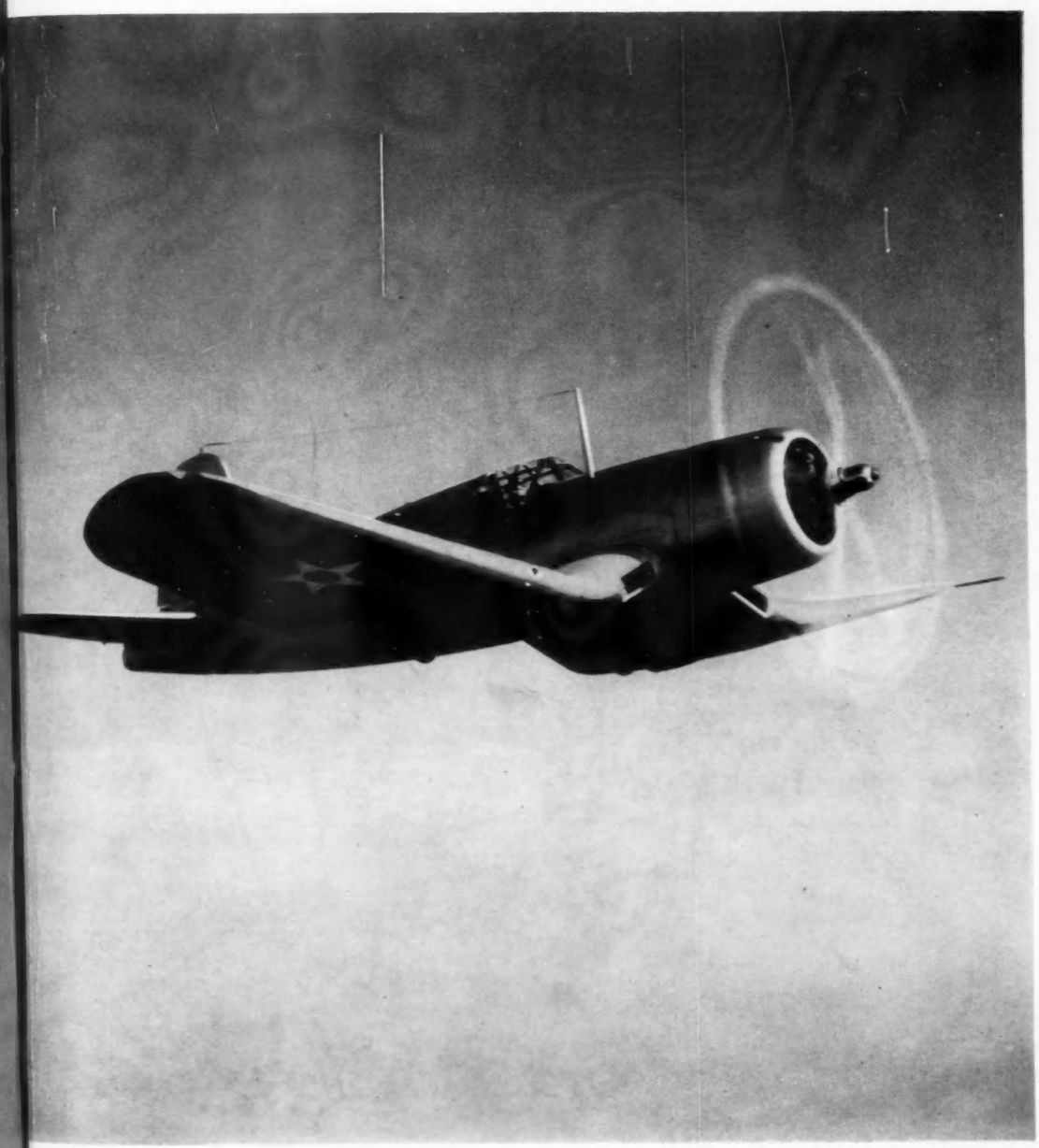

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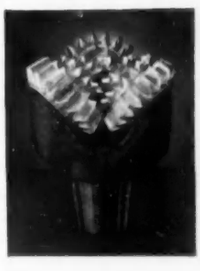

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VOLUME 103 — SEPTEMBER 8, 1941 — NUMBER 10

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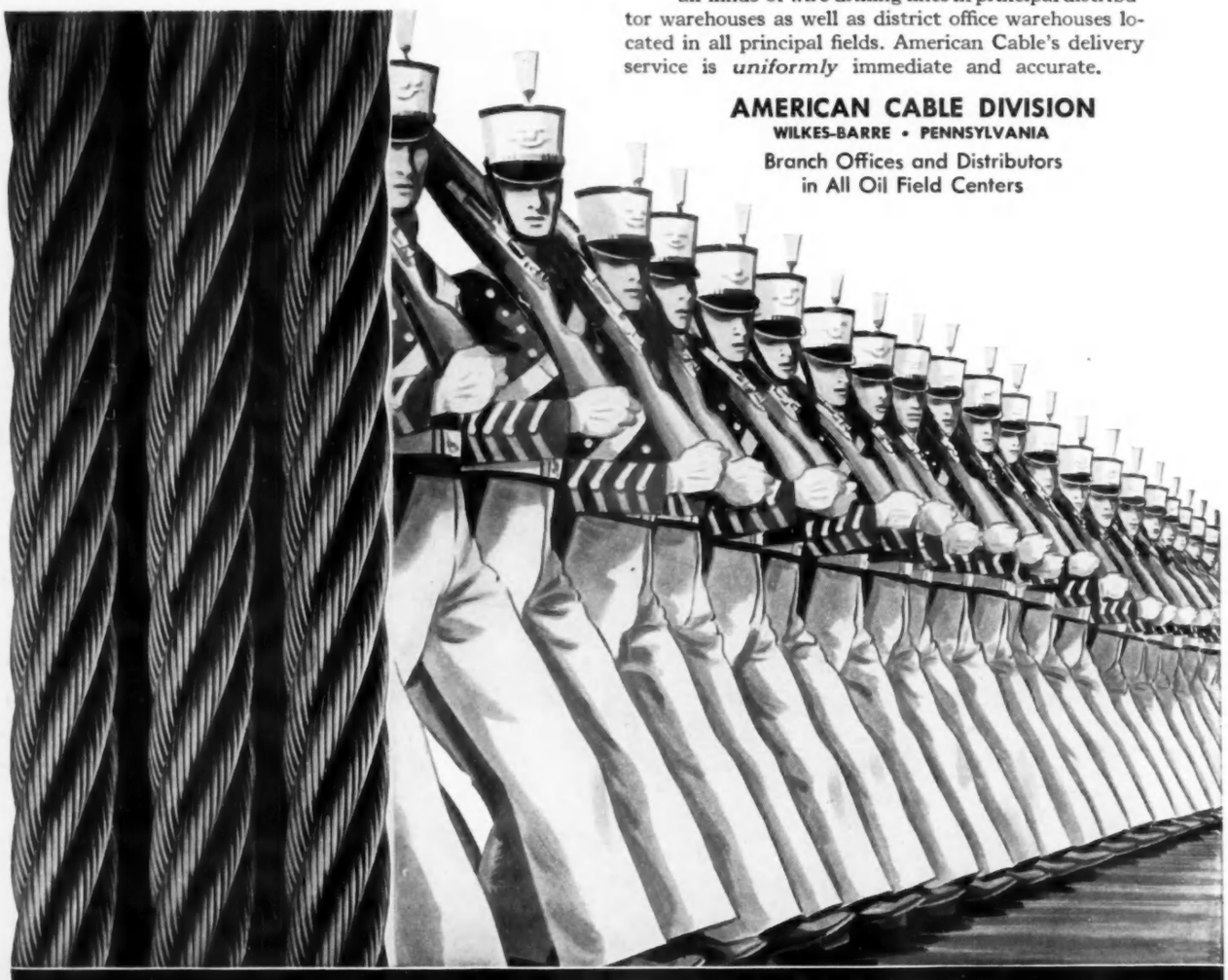

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The Oil Man's Calendar

SEPT.	
8–12	**American Chemical Society, Atlantic City.**
17–19	**National Petroleum Association, Atlantic City.**
OCT.	
2– 3	**West Virginia Oil & Natural Gas Association, Clarksburg.**
6– 9	**National Safety Congress, Chicago.**
9–11	**Texas Mid-Continent Oil & Gas Association, Beaumont.**
16–17	**American Association of Petroleum Geologists, Pacific Section, Los Angeles.**
16–18	**American Institute of Mining & Metallurgical Engineers, Petroleum Division, Dallas.**
20–22	**National Stripper Well Association, Tulsa.**
20–22	**Independent Petroleum Association of America, Tulsa.**
30–31	**American Institute of Mining & Metallurgical Engineers, Petroleum Division, Los Angeles.**
31	**California Natural Gasoline Association, Los Angeles.**
NOV.	
2– 7	**American Petroleum Institute, Annual Meeting, San Francisco.**
DEC.	
3	**New Mexico Oil & Gas Association, Artesia.**
5	**Oklahoma Stripper Well Association, Tulsa.**

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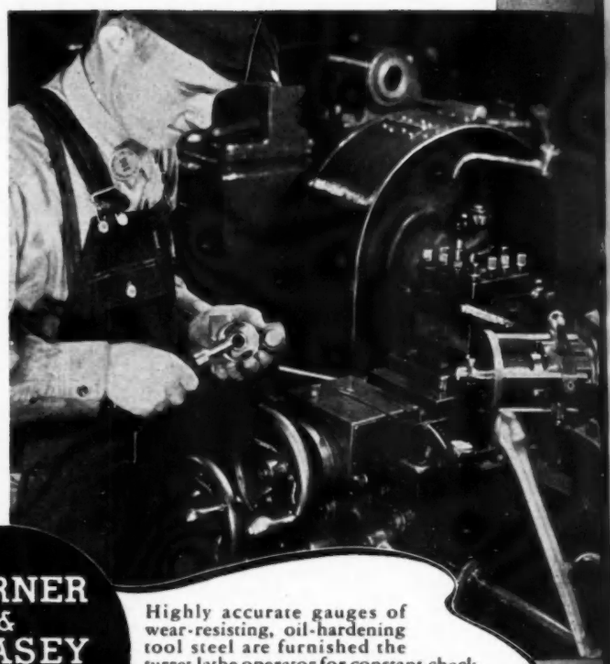

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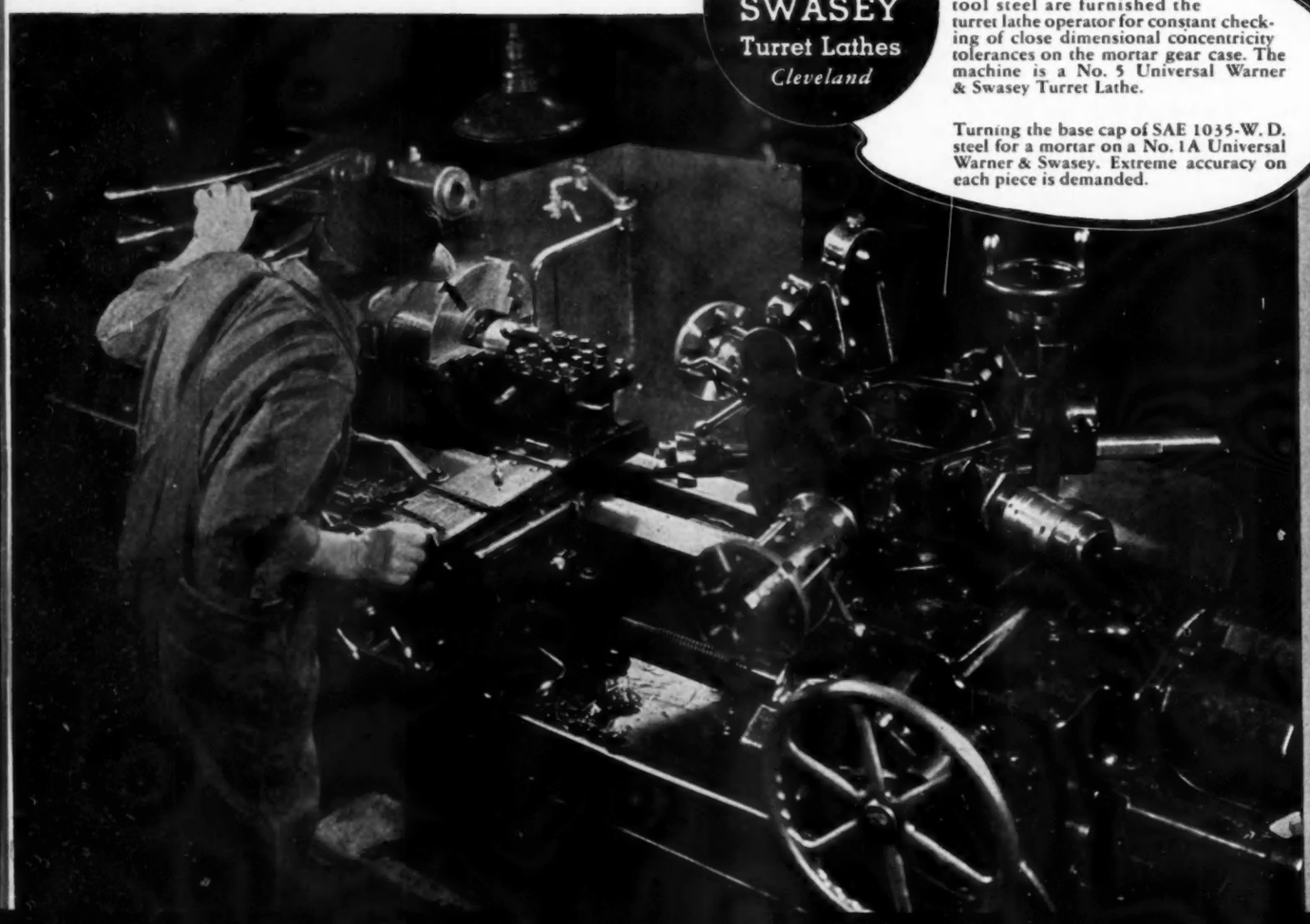


The Changing Panorama

Building Bigger And Faster Tankers

Fewer Boats Will Be Needed In Future To Carry The Same Quantity of Oil

Modern tanker construction design is for bigger and faster boats, consequently each of these new tankers placed in service is equivalent to more than one average tankerer currently in use. The world's tanker fleet in the future, therefore, will require fewer ships to move a given quantity of oil. Already 139 of these modern tankers with better than average size and speed have been ordered. The 25 of these larger and speedier boats due to be delivered by next April will be more than equal to the carrying capacity of the 48 commercial tankers diverted from the United States fleet to Great Britain and the 9 taken over by the United States Navy. Therefore, unless all are used in other services or an exceptionally large number of additional tankers are diverted meanwhile, they will go far toward relieving the East Coast transportation shortage.

Some of the new tankers launched recently and others due to be placed in service in the near future range in capacities up to 150,000 barrels (6,300,000 gallons), whereas the conventional tanker in service between the Gulf Coast and the Atlantic Seaboard averages 87,000 barrels or 3,654,000 gallons per load. Furthermore, the increased speed of the new boats is another important factor in reducing the number required. Most of the new tankers have cruising speeds of 16 knots, while a few go up to 20 knots. Thus, they will be able to complete the 4200-mile round trip between Houston and New York in 10 to 12 days, while the conventional tanker takes 17 to 18 days.

Consequently, while 260 conventional tankers are required to make approximately 5200 loadings per year, 100 a week or 14 a day, to move the 19 billion gallons transported annually from the Gulf Coast to the Atlantic Coast states, it would be possible for a fleet of less than 100 of the biggest, fastest tankers to carry the same quantity in less than 3100 loadings per year, 60 per week or 9 a day.

Meanwhile, speed up in tanker construction methods to the point that they may be completed in 4½ to 5 months, promises to have some easing influence on the East Coast petroleum transportation problem —especially if there is further concentration on the more modern boats, for each of the new fast, larger tankers to come off the ways will be equivalent to nearly 3 of the conventional oil boats now in service.

Returning Soldiers . . .

A movement has been started seeking to protect men now in the service from unjust discrimination in receiving employment when their term of service is up. It is the purpose of the movement, headed by the Civil Protection League, to provide legislation, if necessary, which will prevent an ex-service man from being discriminated against because of lack of union membership upon his return from service to civilian life.

We are in sympathy with the league, but we point out that it is a crying shame that any organized effort be necessary to protect an American citizen, whether he be an ex-service man or not, from molestation in a job just because he did not choose to belong to a union.

We have always wondered if the Constitution itself did not guarantee a man the right to work in a job where he was acceptable to the employer without molestation from union organizers or strong-arm squads.

National Unity . . .

A good Southern Colonel friend of ours who has voted for President Roosevelt every time he has run, says that he does wish that the President did not find it so necessary to national unity to mention so frequently the one and only civil war we ever had.

Idle Tank Car Talk Raises Questions

Railroads As Well As Oil Companies Have Problems In Using Such Service

Repeated statements, mostly by railroad association officials, that there are 20,000 idle or surplus tank cars available at a "moment's notice" that could haul between 200,000 and 250,000 barrels of petroleum from Texas to the East Coast, raises the question of why oil companies are not placing them in service. Again, the petroleum industry is being placed in a bad light with the general public, and again most of the criticisms are unjustified.

There are several reasons why oil companies have not adopted the use of tank cars more quickly. In the first place, neither the petroleum coordinator's office, the industry, or government transportation committees have been able to locate the idle tank cars allegedly existing. Secondly, there has been the matter of rates, and now that they are being reduced as much as 33 to 50 percent, companies are making plans to use such facilities. However, they will still be twice as great as pipe-line charges in most instances. Thirdly, several thousand have already been placed in service, and by fall it appears that 50,000 barrels daily may be moving from Middle-West pipeline terminal points or Mid-Continent fields to the East Coast. Another reason, has been the necessity of installing loading and unloading facilities. One company alone has invested $100,000 in new racks, and will increase this expenditure several times under plans now being formulated for fall.

Then the railroads have a number of problems to work out (besides tariff charges), although they are saying nothing about these. The movement of large volumes of petroleum by railroads would require a sufficient number of locomotives where a shortage already exists, enough trackage to avoid delay of other necessary deliveries, and loading and unloading facilities

among other things. That the matter of handling is not as easy as the railroads apparently wish the public to believe, is the instance in which Socony-Vacuum Oil Company made plans to install facilities to receive petroleum by car in the Erie Railroad yards at Jersey City, New Jersey, only to have the government come along and take over the yard for war material shipments. This necessitated that the company work out a substitute plan, not nearly so convenient or readily adaptable.

Disagreeing Views . . .

We have heard some fine reports on Assistant Co-ordinator Davies. But we were frankly disturbed by his attitude as exhibited at the senatorial hearing recently in which he indicated that he, too, might be falling into the Washington frame of mind under which anybody who disagrees with the administration is not a good citizen. After all, Mr. Davies, there are a lot of people — some of them fine citizens, who do not agree with your and our belief that the thing to do is to go all out in a world war. Their judgment may not be good, but a blanket indictment of intentions is not a safe thing in which to deal.

Export Licenses . . .

All supplies of United States oil have been denied Japan since the new controls on exports were put into effect August 2.

But while no licenses have been issued for exports to Japan, eight or nine tankers have moved from American ports, carrying low-grade products to Spain, and licenses for the export of commercial grades have been granted to Sweden, Switzerland and some French North African colonies.

State Department officials explain that these licenses were issued in conformity with the Administration's policy of attempting to maintain some semblance of normal trade under the handicaps of an upset world. But only the minimum needs of a foreign country are to be met in this way, and all possible precautions are taken to insure that shipments will not find a destination outside the country to which they are licensed.

Members of the British Empire, Russia, China and Latin America are receiving their usual quantities of oil and, in some cases—Russia, particularly — more than usual, since licenses are granted almost automatically to those countries.

Navy May Drill . . .

A drilling and production campaign by the United States Navy in the Elk Hills Naval Reserve in California is in contemplation and may start in the near future. This reserve was the subject of much controversy prior to the entry of the United States into World War No. 1. At that time Assistant Secretary of the Navy Roosevelt was very active in the move to reserve from private operation what is now known as Naval Petroleum Reserves No. 1, Elk Hills.

Crossing "Fights" . . .

Reminiscent of days of railroad-crossing fights, when the line there first went so far as to derail a locomotive to prevent the rival from laying the necessary frogs to constitute a legal crossing, is the story that comes out of Georgia in connection with a pipe-line project there. It is related that after the line had come up to the railroad embankment on both sides, and awaited only permission to bore through and complete, a pile driver was sent to the site and a tight "fence" of old rails driven into the embankment at the spot where the hydraulic borer would normally have cut through for the pipe. The reason, of course, was "to support the embankment against caving."

Payoff in Yesses? . . .

There probably is not a lot of truth to the report that major oil companies who were the target of the U. S. Attorney General's suit will have to pay off only in yesses. Might be dollars and yesses too.

SHAKE-OUTS
From The News

Unofficial reports on the Montreal pipe line as of September 1 show half of the line laid, with one Canadian station 33⅓ percent complete, and foundations cast or pouring on all others. Dredging in Portland harbor to admit full tanker draft is proceeding toward completion ahead of line construction.

»

After several months of attempting to reduce gasoline consumption through voluntary curtailment, Canada has followed the action imposed by the United States on its eastern coast and instituted sharply reduced deliveries to filling stations. Deliveries during September and October are to be only 75 percent of July deliveries.

»

The first United States tanker carrying petroleum to Russia, last week had reached the Pacific Coast port of Vladivostok. As the tanker passed through Japanese waters much speculation was taking place as to any possible action the Japs might take relative to United States assistance to the Soviets.

»

Transfer of a 14,000-barrel capacity tanker, first ever built on Houston Ship Channel, to the United States Navy has been completed. The vessel was built for the Portuguese government by Platzer Boat Works, but was requisitioned by the United States to augment the dwindling tanker fleet. A. T. Gholson, Portuguese government representative, made the transfer to the Maritime Commission which in turn transferred the tanker to the Navy.

Preparations have been made for the protection of the oil fields in Dutch East Indies in case of an invasion, and finally for blowing them up if they become undefendable. Big trees lining the few key roads connecting the oil fields with the Java coastline, for instance, are reported to have been deeply notched and the notches filled with rocks so dynamite would cause them to block the roads. In addition, towering wooden platforms filled with rocks have been constructed, readily to be toppled over. The surrounding terrain is pitted with machine-gun posts.

»

The Pennsylvania railroad last week announced a 50 percent reduction in tank car rates from Illinois and Ohio to East Coast refineries. The railroad has been carrying about 20,000 barrels of crude oil daily, and to date has moved a total of 480,000 barrels of crude.

»

Although passenger-automobile production will be cut 26½ percent for the four months, August-November, under agreement of defense and industry officials, a high priority rating has been put on manufacture of trucks of 1½ tons or larger capacity.

»

A new laboratory by-product of petroleum is "triptane," which will permit the refiner to step up 100-octane gasoline to around 150 octane, and permit airplanes to do things never dreamed of in the way of speed, climbing, and altitude. It may take several years to perfect triptane to where it can be put into general use. Present cost is $25 to $30 a gallon and production is small.

Washington Roundup

Senate committee skeptical of necessity for East Coast shortage and need of big pipe line, after railroad interests testify idle tank cars could relieve situation . . . New rail rate reductions made . . . Bids asked on concrete barges

By B. F. LINZ, Washington Correspondent

HAMMERING away steadily, the special Senate committee investigating the eastern oil shortage pounded spike after spike into what looks like a coffin for the projected Texas-New York pipe line during the week, as defense officials showed two ways in which the situation could be cleared up more quickly and cheaply.

The committee had before it the plan of Chairman Emory S. Land of the Maritime Commission for the construction of reinforced concrete barges to be towed by tankers or sea-going tugs, and the assertion of J. J. Pelley, president of the Association of American Railroads, fully supported by Ralph Budd, transportation member of the National Defense Advisory Commission, that there are enough tank cars lying idle to carry all the oil needed on the seacoast.

Members of the committee made it no secret that they considered the pipe line unnecessary and unwise, taking from ships and railroads steel urgently needed for construction, and Senator W. Lee O'Daniel of Texas outspokenly suggested that the shortage may have been overemphasized in order to secure governmental support for what eventually will be a natural gas line, thus avoiding the opposition usually expressed to such projects.

As the committee hammered away at what some members called the "alleged shortage," oil and railroad executives gathered behind closed doors to work out lower rate schedules which would permit the use of tank cars without penalty to the oil companies.

Cuts ranging from one-third to one-half on crude oil and 25 percent on refined products, agreed to by oil companies and railroads, and a pledge of eleven companies to utilize tank cars to the fullest extent paved the way for an increase in supplies to the east.

But there was no indication that either the labors of the Senate committee or the efforts of the coordinator's office would result in any relaxation of the present consumption restrictions, said Leon Henderson, head of the Office of Price Administration, disclosing that plans call for the placing of the additional supplies in storage against the expected heavy early 1942 demand.

With the vacation season over, the coordinator's office turned its attention from the gasoline shortage to the possible fuel oil shortage, with Deputy Coordinator Ralph K. Davies appointing a special subcommittee on that subject to advise the marketing committee for District No. 1:

At the same time, he appointed subcommittees on asphalt and advertising, although some oil men wondered what there might be left to advertise if restrictions are tightened, and his legal counsel advised the Senate committee that while the coordinator's authority goes only so far as to recommend to the industry what it should do, the OPM has the authority to institute and enforce rationing, if that step becomes necessary.

Senate Hearing

Responsibility for the current shortage of gasoline in the eastern states was laid squarely on the doorstep of Petroleum Coordinator Harold L. Ickes by J. J. Pelley, president of the Association of American Railroads, at the resumption of hearings before the special Senate committee September 3.

Pelley told the committee that there are 20,000 tank cars lying idle on railroad tracks, capable of transporting 200,000 barrels of oil a day into the eastern states. He testified that the railroads foresaw the present situation a year ago, and as far back as last January reported to Ralph Budd, OPM transportation commissioner, on the facilities of the carriers.

"In December, 1940, we were officially notified by Mr. Budd that there was a possibility of withdrawing some of the tanker fleet and he asked to have representatives attend a meeting in his office with Dr. Robert E. Wilson, to discuss the movement of petroleum by tank cars," he said. "At this meeting, the railroad representatives gave the result of a tank car survey and advised the group that the reported surplus tank cars would handle in excess of 200,000 barrels of oil daily from the producing areas to the Atlantic seaboard and that locomotives were available to move the cars.

"In May, 1941, a fact-finding committee that was named by the American Petroleum Institute looked into the tank car question and this committee confirmed the fact that 20,000 surplus tank cars were available and that this equipment would move from six to eight million barrels of oil per month from Texas to the Atlantic seaboard.

"Within the past week I have seen reports of another study made of this tank car situation. This report was made by a man selected by the tank car owners and lessees and from the results tabulated to date it is still evident that there is a surplus of some 20,000 tank cars."

A copy of the report to the OPM was given the petroleum coordinator's office in June, the railroad executive said, but no action was taken until August 30, when Deputy Coordinator Davies called a meeting of transportation and oil company representatives to dis-

cuss freight rates, to be held September 4.

In view of the surveys and reports made by the carriers, Pelley said, he was "surprised" at Davies' statement before the committee August 28 that he had been unable to get information on the tank car situation from the railroads.

The major obstacle to putting all available tank cars immediately to work, he explained, is the spread between rail and tanker rates. Within the past few weeks, 41 rate reductions have been made by the roads and 40 more are pending, but even on this basis, he said, the rail rate is about six times the tanker charge.

The oil companies, he continued, are willing to do anything "consistent with good business practice" to get adequate supplies into the eastern states, but have been deterred from taking concerted action by fear of Department of Justice anti-trust prosecutions.

However, Pelley said, action could be taken by the coordinator to make use of tank cars in such a way that no individual companies would be placed at a competitive disadvantage. If 15 percent of the oil is brought in by rail and 85 percent by tanker, an averaging of the cost would mean an increase in retail gasoline prices of only 1 to 1½ cents per gallon, he estimated.

If a plan for the use of cars is worked out, he told the committee, "solid trains of oil" could be started from the southwest producing areas to the Atlantic seaboard within a week, and within two weeks a steady delivery of 200,000 barrels or more a day could be assured.

This would more than make up the present deficiency in deliveries, estimated by Davies at 174,000 barrels daily.

Questioned by members of the committee as to the railroads' attitude toward pipe lines, Pelley admitted that construction of the Baton Rouge-Greensboro line had been delayed for many months by the Georgia roads, and explained that the carriers naturally do not like to see pipe lines built because they take business away.

He said, however, that he knew of no railroad opposing the construction of the proposed line from the southwest to the New York-Philadelphia refining area, and while he refused to express any view as to the need for the line he said its construction would require large volumes of steel which the railroads need for the production of new freight cars.

A Summary

As Pelley concluded his testimony, Chairman Francis Maloney undertook to sum up the situation.

"Mr. Davies says there is a shortage of 174,000 barrels a day," he said.

"The transportation group and the oil industry are meeting tomorrow.

"The oil people are very anxious to cooperate.

"The railroads say they are ready to go, and the equipment, engines and facilities are available or can be and will be made available.

"Whose move is it?"

Pelley replied that he thought it was the oil companies' move, but the Senator disagreed because, he said, "this shortage—or alleged shortage—originated, insofar as the public knows, in the office of the coordinator; is not it really his move?"

Gasoline Curtailment Protest

Prior to the appearance of Pelley, a written protest by Senator David I. Walsh (D., Mass.) against the cuts in gasoline deliveries was placed in the committee record.

The curtailment orders were characterized by the Senator as a "glaring example of bureaucratic blundering," and he appealed to the committee to develop some "rational" plan to meet the situation which New England industry will face this winter.

"Existing uncertainty and disputes, and the confusion as to ways and means of curtailing consumption of gasoline has created an intolerable situation that it would seem could have been avoided and most certainly needs to be remedied without delay," he declared.

Cheaper Tank Car Rates

Meanwhile, in an effort to speed up deliveries to the East it was reported the Interstate Commerce Commission would be asked to institute drastically lower "emergency" rates on oil shipments to the coast.

The major question, however, appeared not to be the actual freight rate but the ability of the railroads to handle the long trains which would be required for a mass movement and the possession by the oil companies of adequate facilities for shipping and receiving by rail.

Unless a very heavy movement can be initiated, it was indicated, the use of tank cars will have little effect on the situation, and there was some question of the ability of the railroads to sandwich in a large number of long oil trains between the heavy trains which are moving defense and civilian products.

Charges Shortage "Planted"

The suspicion that the threat of the eastern shortage was "planted" in order to secure governmental backing for the proposed Texas-New York crude line was voiced at the September 4 hearing by Senator W. Lee O'Daniel of Texas.

Declaring that the hearings already have shown there is no shortage of oil in the United States and no shortage of transportation to get it into the area, the Senator suggested that the situation has been played up so that what eventually will prove to be a natural gas line could be built without the opposition usually displayed to such projects.

The committee should "try to develop what is back of this alleged shortage," he said.

Senator O'Daniel voiced his opinion after Ralph Budd, transportation member of the National Defense Advisory Council, had supported fully the statements made by Pelley that there were at least 20,000 idle tank cars available to bring oil into the east.

Under questioning by the committee, Budd said that the Montreal-Portland line and the Baton Rouge-Greensboro lines might contribute to national defense, but that the Port St. Joe-Chattanooga line was a "fight between competing forms of transportation" in which he, as a defense official, was not interested, and the proposed long-distance line would take from the railroads steel urgently needed for their car construction program.

Budd said he had heard that the long line would be turned into a natural gas facility after the emergency, eliciting from Senator O'Daniel the remark that the usual oil line is 10 or 12 inches in diameter but natural gas lines are of the size planned for the Texas-New York facility.

The only obstacle to the immediate use of tank cars is that of freight rates, Budd said, adding that he believed that problem could

be worked out. Members of the committee suggested that all transportation facilities be pooled and the cost spread among the various companies so as to avoid a serious competitive disadvantage to those which have no tankers and must use freight, but the commissioner said no discussion of that point had ever been undertaken by federal agencies.

He said that after the emergency, if there are sufficient tankers, neither pipe lines nor tank cars would be used, and if the proposed pipe line is built the tank car owners probably will build no new cars for petroleum.

He agreed with Senator Harold H. Burton of Ohio that the best method of meeting the current situation might be to use pipe lines to bring oil part way from the producing fields and tank cars for the remainder of the distance, rather than to undertake the construction of an 1800-mile pipe line.

"I want to make it clear that if pipe lines are built to take care of oil and gasoline in the eastern United States, the car and locomotive building and maintenance programs should not be interrupted by diverting steel or other material from them to pipe lines and pumping stations," Budd asserted.

The study made by the Association of American Railroads last year indicated that 200,000 barrels could be handled from Texas to the eastern seaboard daily, he said. "The large number of rail routes which are available make it possible to distribute the traffic load so widely that no one route or railroad would be heavily burdened," he explained.

"Last December when there were several conferences on the subject, it was pointed out that diverting oil from tanker to tank car would require loading and unloading facilities at points of origin and destination so as to load and unload cars quickly and without delay. It was understood at that time that the petroleum people would make a study of these requirements, and prepare plans and estimates of typical layouts that would be necessary and determine the length of time required to erect them. I do not know whether that was done, or the extent to which loading and unloading facilities were erected, although I do know that the unloading racks at Bayway, New Jersey, have been enlarged.

"All of the considerations which I have stated lead me to believe that it would be physically practicable for the railways to deliver 1000 carloads of oil a day to the eastern coast. Since the cars average about 200 barrels each, that would be about 200,000 barrels a day."

Henderson Favors Pipe Line

Agreeing with Chairman Maloney that you can't give pipe lines away, Leon Henderson, OPA administrator, told the Senate committee September 5 that you can't sink them, either.

Henderson took his crack at the tanker diversions after telling the committee that he favored the two southern lines now under consideration but would have to look into the question of steel supply before passing on the Texas-New Jersey line.

Going far out of his way to support Deputy Coordinator Davies, who has been under attack by the committee for failing to move faster in the development of tank car transportation, Henderson agreed with the figures of the coordinator's office on the shortage, saying that had it not been for the various expedients resorted to the deficiency would have been 400,000 instead of 174,000 barrels a day.

The OPA head told the committee he would be more "comfortable" if stocks on the East Coast, estimated by Davies at 44,800,000 barrels by the end of this year, could be restored to their 1940-end level of 72,000,000 barrels, and disclosed that if, as promised, tank cars are able to move an additional 200,000 barrels a day into the area it is to be placed in storage as a safeguard against "potentialities."

If this is done, he said, present restrictions must be continued, but it is hoped that they can be lifted quickly. Under the present curtailment program, he asserted while deliveries are cut to 90 percent of July, that month was a peak period, and despite the cut deliveries this month will be seven percent greater than in the corresponding month last year.

Should rationing become necessary, he commented, the OPM has full authority to impose it on fuel, power and other commodities.

The industry, generally, has adhered to its promise not to make increases in gasoline prices, he said. But added, "No one can justifiably claim that oil companies have been deterred from using higher cost transportation by considerations of price," since they have been told repeatedly that if costs actually increase there will be no objection to price increases. However, he emphasized, "The industry has been very reasonable."

Henderson said that most of the companies have a cost of about one half cent per gallon for tanker transportation, while the recently promulgated maritime commission ceiling works out to about 1½ cents in maximum and neither a minimum nor a desirable rate, and it is planned to ask for a re-examination of the rate.

While he refused to pass on the proposed long-distance pipe line, Henderson said he was in favor of pipe lines generally, as an "ace in the hole" in the event of war. Under questioning, he expressed the opinion that pipe line transportation costs were not much greater than tanker costs and raised the possibility that a 24-inch line might be able to move oil at a rate comparable to that of tankers.

Henderson declared the investigation has accomplished much in spurring the various interests to quick action to relieve the situation, and urged that the committee remain alive until the whole question has been cleared up. The OPA head was the final star witness of the week.

C. F. Dowd, traffic manager of Tide Water Associated Oil Company, New York, and chairman of the recently formed tank car subcommitte of the transportation committee for District No. 1, challenged figures of Pelley and Budd that there were 20,000 idle tank cars available.

Challenge Tank Car Figures

Dowd explained he had no personal information of the number of cars available, but questioned there were as many as represented, raising the point that even if there were cars available there was not assurance that they were of the proper type.

The tank car subcommittee, he said, intends to make its own investigation of the car situation and, he promised, as soon as it ascertains the facts, it will make a report to the Senate group.

Dowd refused to admit any personal knowledge of a shortage of oil, saying that was not within his province as a traffic man, but declared so far as his company was concerned there was no shortage of cars. He explained that at the September 4 meeting with the railroad officials, the subcommittee

worked out a schedule of rates, higher than the oil industry had sought but still satisfactory, which it has referred to the coordinators office for approval.

Under that schedule, rates on crude into District No. 1 are reduced to thirteen percent of first class rates, and the rates on refined products are reduced 25 percent.

The result, he said, will be to reduce the rate on crude to New York from $2.08 per barrel to $1.37 from Longview and $1.52 from Houston; from Tulsa to New York from $2.02 to $1.27 and from Baton Rouge to Charleston from $1.55 to 93 cents. Rates from Eastern territory into the district will be reduced 50 percent. The only remaining obstacle to the prompt use of rail cars, he told the committee, will be the necessity of installing loading and unloading facilities at points of origin and destination which heretofore have operated on supplies traveling by tanker or pipe line.

Expressing "disappointment" with Dowd's refusal to give unqualified support to claims of Pelley and Budd that the railroads quickly could clear up the shortage, Chairman Maloney said "I supposed, a day or two ago, that this oil shortage was over" and had hoped the investigation could be closed. Instead, he said, it now appears probable the committee will have to call representatives of the companies in to study the situation further.

When hearings resume on September 8, he announced, Senator Downey of California and representatives of the American Automobile Association and of the Philadelphia Retail Dealers will be heard.

Concrete Barge Bids

Encouraged by the favorable reception given by the special Senate committee now investigating the oil shortage to his suggestion for the use of concrete barges to carry oil from the Gulf to the Atlantic Coast, Chairman Emory S. Land of the Maritime Commission has announced the opening of bids September 30 for the construction of possibly as many as 100 "oil scows."

Appearing before the committee August 29, Land outlined a scheme for the use of barges, to be towed by either tankers or sea-going tugs which he said would adequately meet the needs of the East for additional oil.

One hundred reinforced concrete barges of 5000 to 6000 tons capacity could be built with 110,000 tons of steel, he said, in contrast with the 750,000 tons which the proposed long-distance pipe line will require.

The subject, it was disclosed, had been discussed with cement construction and other experts, and on the basis of the September 30 bid opening it is hoped to have the first barges completed and ready for service early next year.

Land explained that the decision to construct the barges was reached after studies had shown that the expanding ship construction program will utilize virtually all the shipbuilding steel that could be made available.

Freight Rates and Cars

As members of the Senate uncovered new possibilities of the use of railroad tank cars to relieve the oil-hungry East, nearly a hundred oil and rail executives met in a Washington hotel September 4 to develop a freight rate schedule which would permit the cars to be put into use.

As oil men and rail executives wrestled over rates, eventually reaching an agreement for reductions of one-third to one-half in the rates on crude and 25 percent on refined products, representatives of eleven companies were closeted in stormy session with Deputy Coordinator Davies, who emerged with a pledge that they would make the fullest possible use of tank cars.

Oil men emerging from the rate conference said the rates agreed upon were not as low as they had asked in a program they had developed, but indicated they were lower than the railroads originally were willing to take.

The new schedule was immediately sent to the coordinator's office for ratification and from there will go to the Interstate Commerce Commission where, it was said, the usual rule for a 30-day wait will be waived and immediate action taken. The commission has indicated that it would approve any rates satisfactory to the railroads.

Members of the tank car subcommittee which negotiated the agreement were C. F. Dowd, traffic manager of Tide Water Associated Oil Company, New York, chairman; J. M. O'Day, Sinclair Oil Company, New York; A. C. Hulchren, Shell Oil Company, New York; A. G. Phelps, Standard Oil Company of New Jersey, New York, and H. D. Shadd, Atlantic Refining Company, Philadelphia.

From a secret meeting which was said to have become heated more than once, Davies announced a written pledge of the oil companies to use every car they could get.

Immediately he dictated a letter to the senate committee telling of the achievement, accompanying it with a photostatic copy of the agreement, for inclusion in the record of hearings.

Signed by J. F. Drake, president of Gulf Oil Corporation; R. W. Gallagher, vice president of Standard Oil Company of New Jersey; H. W. Dodge, vice president of The Texas Company; Robert H. Colley, president of Atlantic Refining Company; J. A. Brown, president of Socony-Vacuum Oil Company; B. I. Graves, vice president of Tide Water Associated Oil Company; W. Alton Jones, president of Cities Service Company; H. F. Sinclair of Consolidated Oil Company; J. Howard Pew, president of Sun Oil Company; Robert E. Wilson, president of American Oil Company, and F. A. C. Guepin, executive vice president of Shell Oil Company.

To Use More Tank Cars

The agreement called for immediate utilization of all available tank cars that can be handled with storage, load and other facilities and requirements available.

At the same time, each company is to increase its loading and unloading facilities to the extent necessary to utilize its full storage capacity, and the increased cost of transportation is to be shared equitably by the signatory companies under a plan to be developed by the transportation committee for District No. 1 and approved by the coordinator.

Through this agreement, Davies said, it is hoped "that more drastic restrictions and curtailments on the use of gasoline may be avoided and that supplies of industrial oils and oil for heating homes can be brought to the area in sufficient quantity to meet winter needs."

In agreeing to make full use of tank cars, the companies protected themselves against loss as a result of the higher costs and specified that while they would not immediately increase gasoline prices, they may apply for approval of advances if such action is found necessary.

"It is obvious that mass movement of crude oil and products by tank car, as against the normal shipment by tanker, must result in a very substantial increase in trans-

portation costs and it is hoped that the applications we have so far made and those which we shall make hereafter for reduced railway rates will be promptly approved by the railroads, thus obviating the necessity for placing upon the buying public the full burden of this emergency expense," the company officials said. "It impresses us as being only fair that the railroads should, in these circumstances, make some substantial contribution.

"The companies will not ask for the sanction of any price increase on account of increased transportation costs until appropriate showing has been made in justification thereof. However, in view of the greatly increased transportation cost which must inevitably result from movement by tank car in lieu of movement by the usual tanker method, it is our expectation that when required to make some price adjustment as a reasonable offset to the added and abnormal expense, our application will have fair consideration by the Office of Price Administration. Further, it is our understanding that your office will support with Mr. Henderson such applications for equitable adjustment."

The agreement, which was in the form of a letter, pointed out that the diversion of tankers originally reduced delivery capacity by about 400,000 barrels, but that by special pipe line, barge, tank car and truck movement and increased efficiency, the shortage has been reduced to 175,000 barrels daily.

"You will see, therefore, that very great progress has been made in minimizing the effect upon industry and the consuming public of the heavy withdrawal of tanker tonnage that has taken place," the company heads said.

"You inform us it has been reported to you that there are an additional large number of tank cars available for use in transporting products to the area of shortage and you ask our intention with regard thereto. The answer is that we shall continue to press into service all available tank cars as rapidly as they can be supplied by the tank car companies and moved by the railroads and within, of course, the physical limitations as to trackage, unloading facilities, storage, etc., that exist.

"In view of the emergency we are prepared to vigorously prosecute this plan to the limit of the additional cars that are actually made available regardless of whether this proved to be 20,000, as you state is claimed by the railroads, or some other figure."

Additional Rationing

Gasoline deliveries in the oil-short eastern territory in September will be held to 90 percent of July deliveries, which will work out as a 15 percent cut to the average motorist.

The oil coordinator's formal recommendation to that effect, approving the formula worked out by the marketing committee for District No. 1, was issued September 2, with the explanation that the September demand was estimated at 667,000 barrels daily and the reduction of 10 percent will reduce actual consumption to about 600,000 barrels a day, or the same as in September, 1940.

Announcing the cut, Deputy Coordinator Davies said that stocks of gasoline on the Atlantic Seaboard dropped 1,204,000 barrels during the two weeks ended August 23, and now stand 1,211,000 barrels below last year's level, although the demand is now 11 percent greater.

Fuel Oil Subcommittees

Appointment of three subcommittees to advise the Marketing Committee for District No. 1 on problems of fuel oil, asphalt and advertising, was announced September 4 by the deputy coordinator.

The fuel oil group was considered the most important in view of the general oil shortage in the eastern states, and was instructed immediately to coordinate all available information on fuel oils, for use in the effort to assure an adequate supply of heating oils during the coming winter, both for industrial use and home heating.

The other groups will devote themselves, respectively, to the problem of asphalt, short in supply for road and other normal uses because of heavy Government demands, and to advertising questions.

J. W. Scott of Buckley & Scott Utilities, Inc., Watertown, Mass., will be chairman, ex officio, of the fuel oil subcommittee. Other members of which will be J. C. Connolly, Standard Oil Company of New Jersey, New York; L. B. Fox, Socony-Vacuum Oil Company, New York; J. J. Mulvey, Atlantic Refining Company, Philadelphia; H. B. Van Cleve, New York; H. H. Fuller, Consolidated Oil Corporation, New York; R. Bartlett, Gulf Refining Company, Pittsburgh, and Gene Collis, Petrol Corporation, Philadelphia.

Chairman of the subcommittee on advertising will be L. T. Kittinger, vice president of Shell Oil Company, New York, other members including W. L. Faust, Socony-Vacuum Oil Company, New York; J. A. Miller, Standard Oil Company of New Jersey, New York; Harold L. Curtis, Shell Oil Company, New York; Eben Griffiths, Socony-Vacuum Oil Company, New York, and S. M. Birch, The Texas Company, New York.

Membership of the asphalt subcommittee will consist of R. T. Haslam, vice president, Standard Oil Company of New Jersey, New York, chairman; Ralph Heath, Barber Asphalt Company, Barber, New Jersey; F. V. Widger, The Texas Company, New York; J. S. Helm, Standard Oil Company of New Jersey, New York; David Waxman, Shell Oil Company, New York; G. R. Christie, Socony-Vacuum Oil Company, New York, and Herschel Smith, Mexican Petroleum Corporation, New York.

Taft Makes Charges

The oil shortage is one of a number of steps taken to stir the people into a warlike frame of mind, it was charged September 5 by Senator Robert A. Taft (R., Ohio), leading member of the congressional isolationist bloc, in a radio address.

Charging that President Roosevelt, while denying that he seeks censorship, has attempted to control the press which "without rebuke he permits Mr. Ickes to blackguard." The Senator charged that the country has not been informed of what was going on or news was played up or down as suited the administration's purpose.

"Take the tremendous excitement about the shortage of gasoline," he said. "No one has been able to find out until the investigation of the Senate committee what the actual facts are about the supply of gasoline. No one could understand why if there was a shortage something was not done about it months ago. No one has any confidence in Mr. Ickes and now the Senate committee shows that there is no shortage whatever which cannot be met by the use of idle tank cars. So most people have come to the conclusion that the whole excitement was merely for

[*Continued on page 56*]

Oil Demand Runs High Despite Curtailment of Eastern Use

By L. J. LOGAN, Associate Editor

DESPITE the loss of a large part of its tanker tonnage, through diversions to British use, the oil industry of the United States managed to reach Labor Day without having failed to fulfill the prevailing record-breaking demand for petroleum products except in so far as it was ordered by the government to reduce deliveries to service stations in the East Coast district by 10 percent in August.

However, the maintenance of the movement of oils to East Coast consumers was achieved during August only at the expense of normal inventories, as the scarcity of shipping facilities prevented usual maintenance of stocks after the latter part of July.

Total Oil Demand 8.1 Percent Larger in June Than Year Previously; Domestic Use Up 13.9 Percent; Similar Gains for First 6 Months 6.3 and 10.6 Percent

(Figures indicate barrels, and are from Bureau of Mines)

ITEM	JUNE			FIRST 6 MONTHS		
	1940	1941	Percent Change	1940	1941	Percent Change
SUMMARY—						
Total Demand	120,624,000	130,447,000	+ 8.1	712,938,000	753,538,000	+ 5.7
Daily average	4,021,000	4,348,000	+ 8.1	3,917,000	4,163,000	+ 6.3
Exports:						
Crude petroleum	5,692,000	3,934,000	— 30.9	26,415,000	15,793,000	— 40.2
Refined products	8,516,000	5,217,000	— 38.7	43,716,000	30,458,000	— 30.3
Total exports	14,208,000	9,151,000	— 35.6	70,131,000	46,251,000	— 34.0
Domestic Demand:						
Total domestic demand	106,416,000	121,296,000	+ 13.9	642,807,000	707,287,000	+ 10.0
Daily average	3,547,000	4,043,000	+ 13.9	3,532,000	3,908,000	+ 10.6
TOTAL DEMAND FOR PRODUCTS						
Motor Fuel:						
Domestic	55,459,000	58,413,000	+ 5.3	278,622,000	308,834,000	+ 10.8
*Exports	2,581,000	1,262,000†	— 51.1	13,090,000	9,421,000	— 28.0
Total	58,040,000	59,675,000	+ 2.8	291,712,000	318,255,000	+ 9.1
Aviation Gasoline:						
Domestic	641,000	1,133,000	+ 76.7	3,032,000	4,185,000	+ 38.0
Exports	646,000	386,000‡	— 40.2	2,336,000	2,114,000	— 9.5
Total	1,287,000	1,519,000	+ 18.0	5,368,000	6,299,000	+ 17.3
Kerosene:						
Domestic	3,952,000	3,918,000	— 0.9	35,048,000	35,042,000	— 0.02
*Exports	332,000	112,000	— 66.3	2,291,000	805,000	— 64.9
Total	4,284,000	4,030,000	— 5.9	37,339,000	35,847,000	— 3.9
Gas Oil & Distillate Fuels:						
Domestic	7,028,000	10,842,000§	+ 54.3	84,887,000	92,626,000	+ 9.1
*Exports	2,129,000	1,380,000	— 35.2	11,326,000	6,830,000	— 39.7
Total	9,157,000	12,222,000	+ 33.5	96,213,000	99,456,000	+ 3.4
Residual Fuel Oils:						
Domestic	25,048,000	29,200,000*	+ 16.6	169,057,000	188,014,000	+ 11.2
Exports	1,959,000	1,267,000	— 35.3	7,710,000	6,829,000	— 11.4
Total	27,007,000	30,467,000	+ 12.8	176,767,000	194,843,000	+ 10.2
Lubricants:						
Domestic	2,146,000	3,171,000	+ 47.8	11,806,000	15,043,000	+ 27.4
Exports	1,075,000	831,000	— 22.7	6,759,000	4,705,000	— 30.4
Total	3,221,000	4,002,000	+ 24.2	18,565,000	19,748,000	+ 6.4
Wax (thousands of pounds):						
Domestic	21,687	46,522	+114.5	146,885	242,223	+ 64.9
Exports	13,195	16,058	+ 21.7	129,806	80,698	— 37.8
Total	34,882	62,580	+ 79.4	276,691	322,921	+ 16.7
Coke (short tons):						
Domestic	101,900	116,000	+ 13.8	669,400	750,300	+ 12.1
Exports	30,700	31,400	+ 2.3	117,000	120,700	+ 3.2
Total	132,600	147,400	+ 11.2	786,400	871,000	+ 10.8
Asphalt (short tons):						
Domestic	570,400	746,400	+ 30.8	1,885,400	2,395,700	+ 27.1
Exports	35,200	18,800	— 46.6	157,700	122,300	— 22.4
Total	605,600	765,200	+ 26.4	2,043,100	2,518,000	+ 23.2
Road Oil:						
Domestic demand	1,275,000	1,356,000	+ 6.3	2,387,000	2,573,000	+ 7.8
Miscellaneous:						
Domestic	207,000	299,000	+ 44.4	900,000	1,696,000	+ 88.4
Exports	45,000	48,000	+ 6.7	624,000	305,000	— 51.1
Total	252,000	347,000	+ 37.7	1,524,000	2,001,000	+ 31.3

* Exclusive of "shuttle" movement. † Includes 5,000 barrels benzol. ‡ Includes 54,000 barrels anti-knock compounds. § Includes 666,000 barrels Diesel bunker oil. *Includes 1,656,000 barrels bunker fuel oil.

Up to August 1, there was only a slight reflection of the tanker shortage, thanks to the various measures taken to compensate for the giving up of tankers to the British.

But since then, additional tanker diversions and seasonal requirements have accentuated the transportation shortage; and serious difficulty in supplying the East Coast is threatened at least for the remainder of this year and the first several months of next year, after which relief is in prospect through completion of scheduled pipe line and tanker construction.

In the week ended August 23, there was a net withdrawal of 2,010,000 barrels from the aggregate stocks of crude oil, gasoline, gas oil, and residual fuel oil on the East Coast, an average of 287,000 barrels daily; whereas in the corresponding week last year there was an increase of 416,000 barrels, or 60,000 daily. These figures indicated that for the August 23 week this year, the industry failed to maintain East Coast stocks as well as last year in the total amount of 2,426,000 barrels for the seven days, an average deficiency of 347,000 barrels daily in the replenishing of the Eastern inventories.

For the week ended August 30, figures on crude stocks are not yet available, but East Coast stocks of gasoline, gas oil, and residual fuel oil in the aggregate were increased 873,000 barrels, an average addition of 125,000 barrels daily, compared with an increase of 1,537,000 barrels, or 220,000 daily, in the corresponding week last year. For the August 30 week, therefore, there was a deficiency of 664,000 barrels, or 95,000 daily, in replenishing East Coast refined stocks, as compared with the experience last year, and it remains to be seen how well crude stocks were maintained.

Information is being withheld by the government on the tanker diversions already made or to be

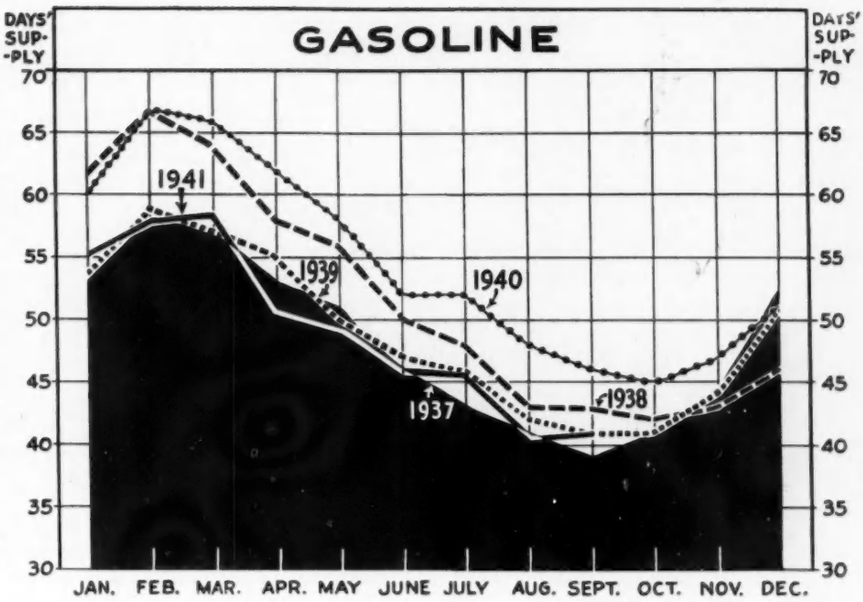
made in addition to the original 50-ship transfer, but it has been plausibly rumored that lately the East Coast has been deprived of the services of about 15 more American flag tankers that formerly plied coastwise and about 35 Norwegian tankers that brought in South American oils. If this is true, and if those boats are all that are to be transferred, it is to be expected that there will be a shortage of about 336,000 barrels daily (21.7 percent) in East Coast supplies during the fourth quarter of this year, equivalent to the carrying capacity of 84 average size tankers, and that the shortage for the first quarter of next year will be 276,000 barrels daily (17.7 percent), equivalent to 69 tankers. (These figures are based on calculations of the fact finding committee of the industry, revised to give consideration to measures taken to compensate for the loss of tonnage.)

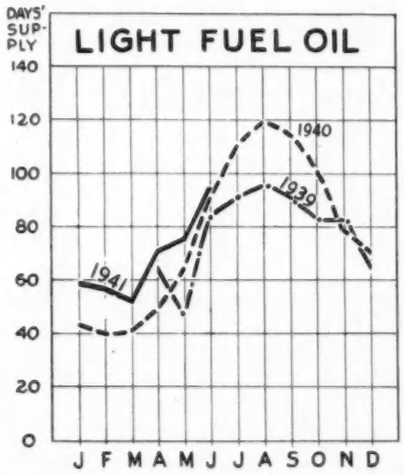
The recent statistics on East Coast stocks makes the report of renewed diversions of around 50

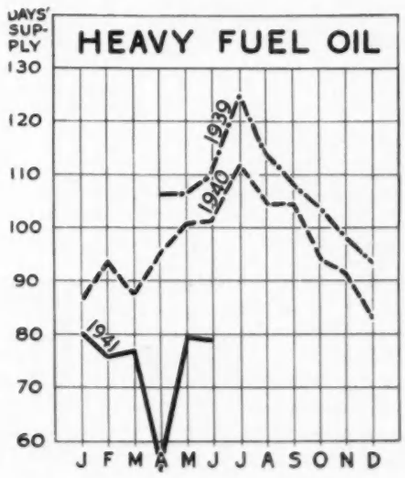
[*Continued on page 52*]

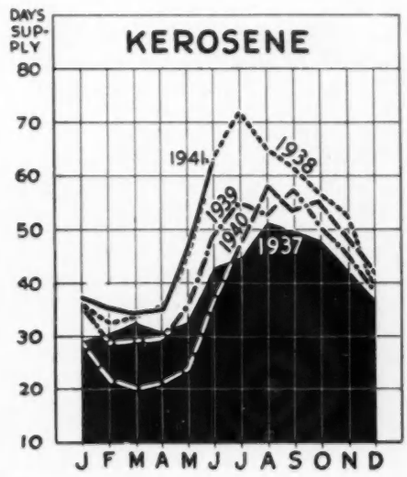
Days' Supply of Principal Refined Products in Storage

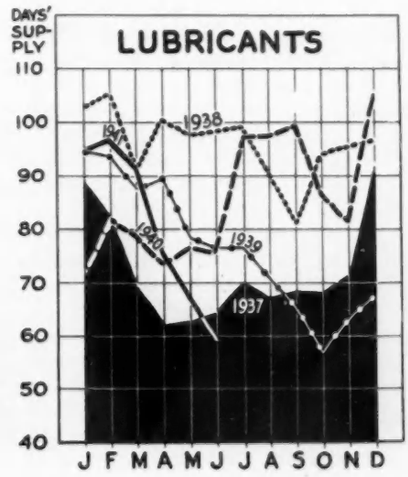
In relation to prevailing consumption, stocks of gasoline and light fuel oil are about same as in several other recent years; those of heavy fuel oil and lubricants are smaller than usual; and inventories of kerosene are above normal.











Changes From Year Ago in Stocks of Crude and Refined Oils in the United States

(Figures Indicate Barrels)

LATEST WEEKLY DATA

(Sources: Crude stock, Bureau of Mines; all other figures American Petroleum Institute.)

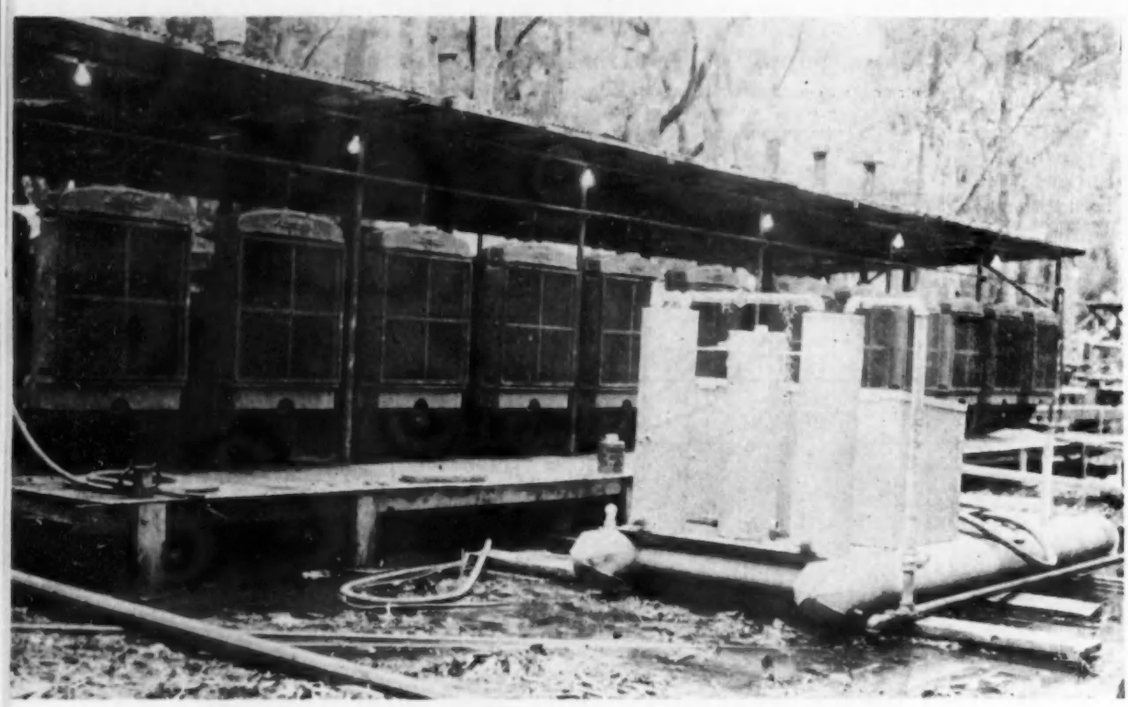
STOCKS OF:	Aug. 31, 1940	Aug. 30, 1941	Percent Change
Gasoline	84,047,000	81,672,000	— 2.8
Gas Oil & Distillate	44,678,000	45,351,000	+ 1.5
Residual Fuel Oil	107,155,000	95,052,000	—11.3
Crude Oil	263,802,000*	248,910,000†	— 5.6

LATEST MONTHLY DATA

(Source: Bureau of Mines.)

	Stocks at End of June		
	1940	1941	Percent Change
SUMMARY—			
Crude Petroleum:			
Refinable in U. S.	261,971,000	259,075,000	— 1.1
Heavy in California	13,334,000	10,711,000	—19.7
Natural Gasoline	7,000,000	6,235,000	—10.9
Refined Products	283,905,000	276,477,000	— 2.6
Total, all Oils	566,210,000	552,498,000	— 2.4
Days' supply:			
June basis	141,000	127,000	— 9.9
6 Months' basis	145,000	133,000	— 8.3
PRODUCTS—			
Gasoline:			
Finished	86,276,000	82,495,000	— 4.4
Unfinished	7,293,000	7,547,000	+ 7.4
Total	93,569,000	89,842,000	— 3.9
Aviation Gasoline	5,268,000	7,341,000	+39.3
Kerosene	6,810,000	9,609,000	+41.1
Gas Oil & Distillate Fuels	26,412,000	30,620,000	+15.9
Residual Fuel Oils	85,448,000	75,938,000	—11.1
Lubricants	8,161,000	7,353,000	— 9.9
Wax (thousands of pounds)	110,346	110,481	+ 0.1
Coke (short tons)	697,000	382,000	—45.2
Asphalt (short tons)	681,000	841,000	+23.5
Road Oil	1,257,000	1,150,000	— 8.5
Miscellaneous	411,000	381,000	— 7.3
Other Unfinished Oils	41,340,000	41,825,000	+ 1.2

* Stocks, August 24, 1940.
† Stocks, August 23, 1941.



Battery of 12 semi-diesel engines drive generators to furnish electric current for Noble Drilling Company's large rig. Arranged in two groups of six engines each, the entire power output may be compounded to satisfy load requirements. A scrubber (foreground) serves each group of engines. Note swampy site.

Multiple-Engine Diesel-Electric Rig

Provides Flexible Drilling Operations

By GORDON B. NICHOLSON, Staff Writer

NOBLE Drilling Company of Tulsa operates a diesel-electric-powered rig in Southern Louisiana isolated marine and semi-submerged drilling operations that obtains its electric current from 12 semi-diesel engines operating the same number of generators. The use of such a large battery of high-speed engines, coupled with employment of the latest variable voltage transmission that allows finger-tip control of power distribution between slush pumps, draw works and rotary motors, constitutes a very flexible drilling hook-up with a minimum waste of current at any time.

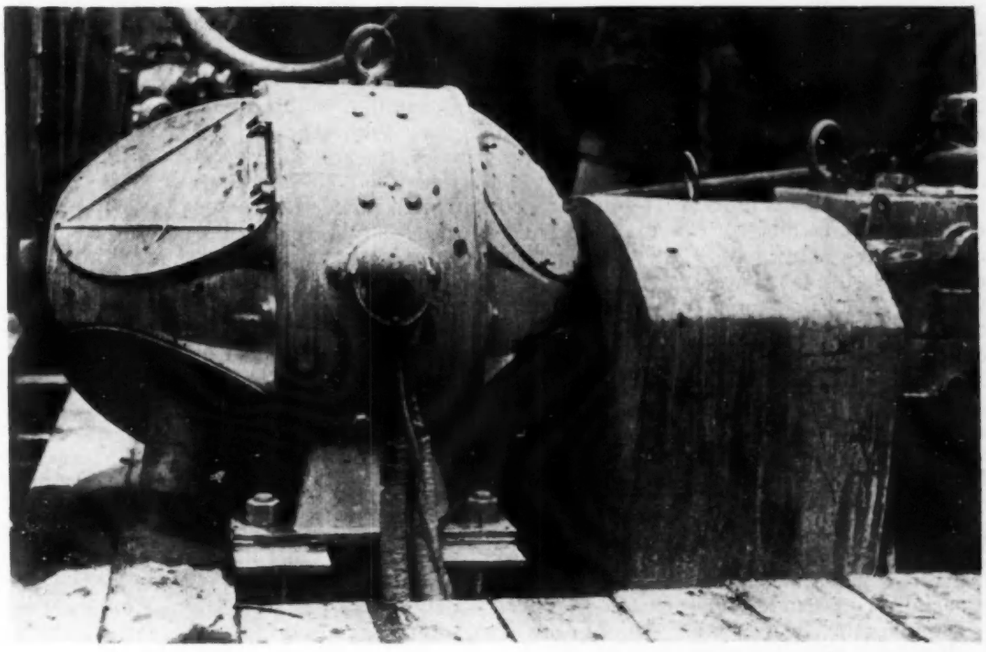
It is practically impossible to overload or stall the motors regardless of load demands, and the control system also provides for partial elimination of engine clutch manipulation, which is used only when starting the generator sets. Consequently, there is a lessening of the ordinary shock on engine and mechanical equipment when picking up loads, and thereby providing a reduction in clutch maintenance expense.

Arrangement of rig equipment is simplified as it is easily placed around the operation to best advantage, and permits establishing mud pumps, power plant, and auxiliary equipment in the most convenient locations. Further advantage is offered by the rig in providing multiple generators in parallel operation, with objective of preventing appreciable loss of power in case of failure of one or more engines.

Noble's heavy-duty rig, now drilling in the Barataria field 25 miles south of New Orleans in the Mississippi River delta country, is especially adapted to drill in the heavily timbered section that is semi-swampy but that does not require a drilling barge. All rig equipment is mounted on steel skids or wooden sills for elevation above the moist soil, and steel tanks are provided for mud pits because of the permeable nature of the surface structure. The rig is customarily used only on deep wells, now drilling on a deep test, and nothing but the largest available equipment is employed, featuring especially heavy traveling and crown blocks which usually carry a 12-line string-up as loads increase, and using large draw works and slush pumps.

Numerous wells with depths approaching 12,000 feet have been drilled with this diesel-electric rig, and in the marshy terrain of the locality where the operation is largely isolated, and fresh water and fuel are obtainable only at a premium and with costly inconvenience.

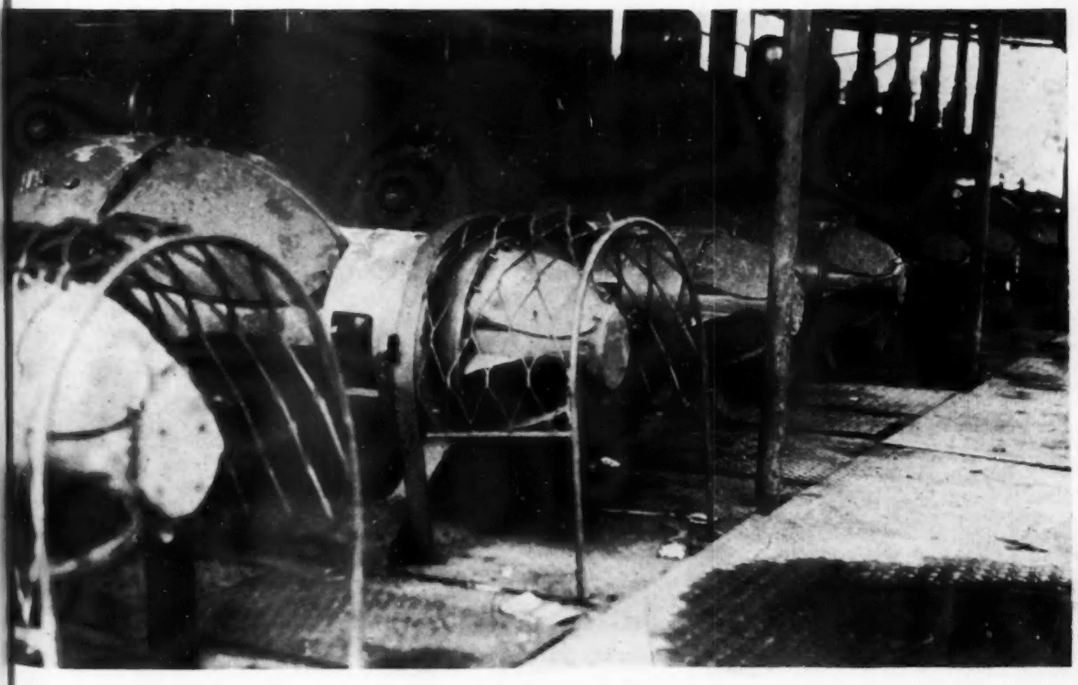
Proper control over distribution of power enables drillers to direct electric current where it is needed, proportioning it between the slush pumps and rotary motors in consideration of amount of work or load requirements while drilling, or compounding power output to



The 200-horsepower rotary motor is one of the five motors supplied with current from the generators. Switches in control house and at draw works facilitate distributing electricity to motors where required.

furnish increased voltage to draw works to facilitate hoisting pipe from hole and reduce time consumption when changing bits. The engines operate either on gas or diesel oil and represent an economy in amount of fuel expended. An engine shed elevated on stilts and equipped with sheet steel flooring and a corrugated iron roof houses the battery of engines, and is open on all sides for ventilation while all exhausts are directed vertically through the roof and equipped with mufflers.

The diesel machines are placed parallel and arranged in groups of six, each engine having six cylinders, and rated at 150 horsepower operating at 1200 rpm, with speed controlled by a governor. Each engine is connected by direct drive to a 60-kilowatt, 100-volt direct current generator with total capacity of 720 kilowatts. The generators are differentially compound wound with drooping voltage characteristic and both self-excited and separately excited shunt fields. The fields have permanent resistance in series with them which will predetermine the amount of demand on the prime mover. This type of generator has the advantage of maximum torques across the full speed range. Each generator is equipped with a 125-volt, 40-ampere exciter which is also connected to the engines by direct drive to lower resistance. When operating on natural gas, a separate scrubber serves each group of engines before they receive the fuel, removing moisture from the gas, and a regulator reduces high pressure in the gas lines to the required amount. Gas normally used is piped from the field where



The 12 generators furnish total of 720 kilowatts for distribution to motors operating slush pumps, draw works, and rotary drilling.

the rig is working; however, when it is not available, or when obtainable in limited quantities, diesel fuel is used, or, if desirable, one group of engines operates on diesel oil while the other uses gas.

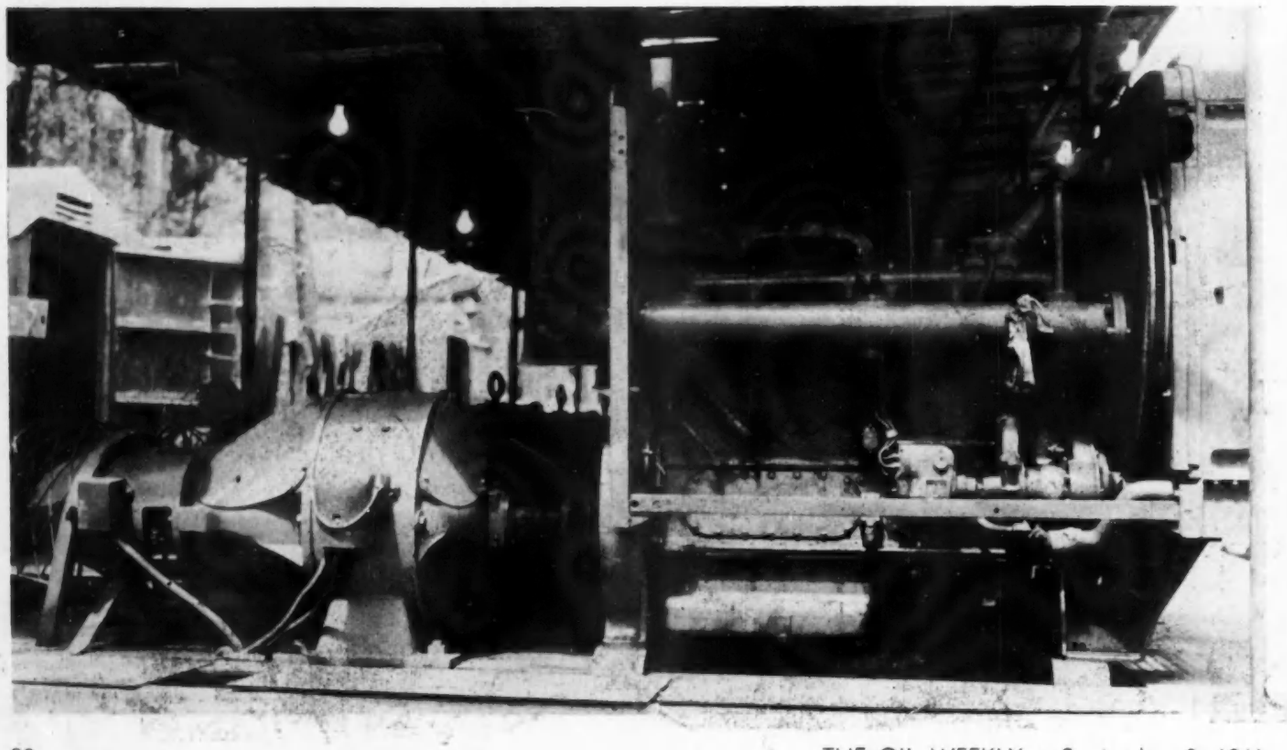
Current produced by the generating system leaves individual generators by means of insulated cables which convey it to a switch control house situated nearby, where a panel board containing an array of switches gives the diesel engineer or power man complete regulation of power distribution, and provides relays and rheostats as well as meters for determining amperage and voltage produced. Heavily insulated cables leave the control house and conduct current to the five rig motors which are served, and are kept covered and protected for that distance by an especially constructed wooden tunnel under the board walk which encloses the wiring to prevent damage from wet weather or heavy equipment which may be dropped. In addition to the main cables, smaller wiring which are the control lines also leave the house.

The cables carry current to the five motivating electric motors which serve the rig, including two motors for the slush pumps, two for the draw works, and one for the rotary. The two motors that operate the slush pumps are of different capacities, the motor moving the larger pump rated at 350-horsepower and capacity of 500 volts and 665 amperes at 900 rpm, while the smaller pump is motivated by a 250-horsepower motor supply 400 volts and 500 amperes at 900 rpm. Two 350-horsepower motors furnish power for the draw works, while a single 200-horsepower motor operates the rotary.

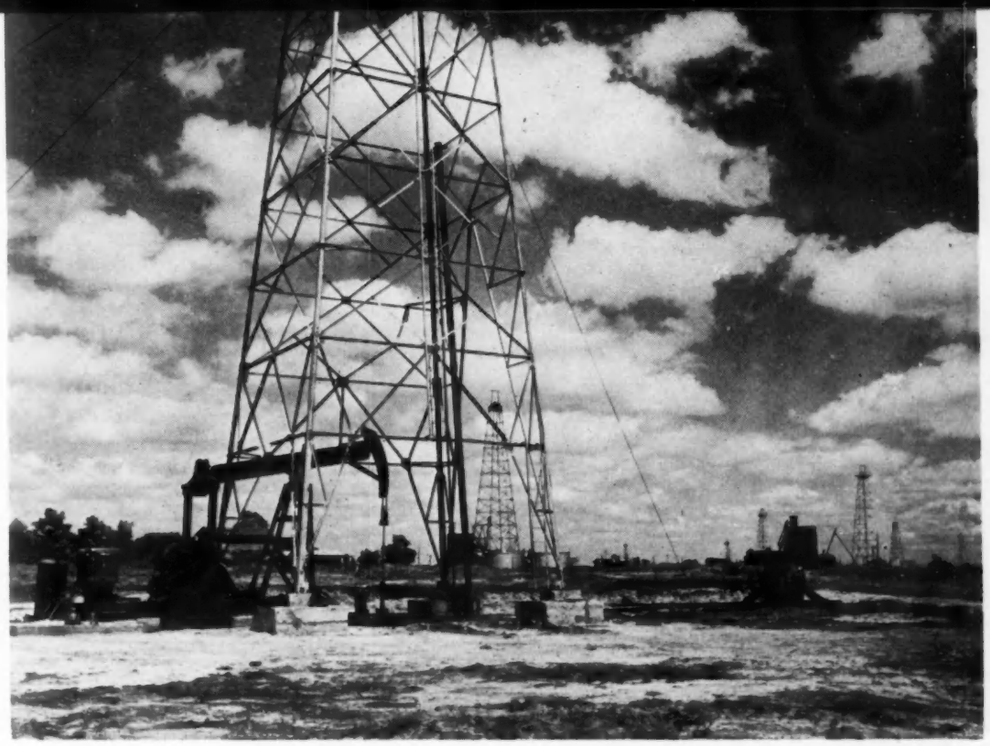
The two series of diesel-propelled generators direct their power to specified motors, one group dividing its electric output between the large slush pump and one draw works motor, while the other group distributes current to the smaller pump, the remaining draw works motor, and the rotary motor. By switch manipulation, increased power is easily placed on any of the motors; for example, full pump capacity of six generators may be placed on the large pump and five on small one, if abnormal mud pressures are needed. Likewise, power is compounded and concentrated in draw works motors to facilitate hoisting pipe out of hole, constituting a sizeable saving of time in this operation at a time when no power is needed for the pumps and rotary. This flexibility offers valuable adaptability for directing current to places requiring it, and allows fuel savings by stopping one or more engines when full power is not required.

In addition to the main switch controls located near the source of power, an auxiliary control box on the derrick floor gives the driller complete control of power distribution in case of emergency or inability to contact motor man stationed at main switches, and a safety switch allows him to cut off power to all motors. Meters continuously visible to the driller from his position at brake indicate load on rotary, pumps, or draw works motors at any time, placing all operations on the rig directly under his supervision. Concentrating this easy means of power regulation in the hands of the driller centralizes operational control to allow quick distribution changes or complete cut-off of current in case of necessity, and constitute an increase in efficiency and safety factors in drilling.

Operation of Noble's large rig under adverse deep drilling conditions prevalent in the area substantiates its selection as being adequate for the requirements of flexibility and adaptability to meet those conditions. The rig is self-contained and is proven to be reliable for any contingency, factors that are a necessity for the type drilling done on the lower Mississippi River.



The 6-cylinder, 150-horsepower semi-diesel engines operate at 1200 r.p.m., and are connected by direct drive to 60-kilowatt, 100-volt direct current generators, each served by a 125-volt 40-ampere excitor.



After a dormant period of from eight to ten years, the "depleted" sands of the old Wortham field in East Central Texas is again being redrilled and produced. Oil and water levels have become readjusted so that with careful selection of methods of completing, new wells may produce oil for years to come.

Readjusted Reservoir Conditions Permit

Redrilling Abandoned Field

By GILBERT M. WILSON, Staff Writer

THE current program of drilling and profitabe operating of new wells in the "depleted" Woodbine sand of the old Wortham, Texas, field after it had lain practically dormant for eight to ten years following its premature abandonment is the interesting sequel to the short-lived history of a prolific field that has proved to be a classic example of the great damage that can be done to a formation through unrestrained, wide-open production of the wells.

During this dormant period, the oil-water levels in the sand have gradually readjusted themselves to a great extent, and while the new wells, that are being drilled between the old locations, still produce large volumes of salt water along with the high-gravity oil, it has been found that through careful use of modern completion and producing methods and techniques, the new wells show every indication of ultimately producing sufficient oil to enable the several operators to realize a substantial profit on their investment.

Wortham is one of eight medium-sized fields that extend in an echelon fashion along the length of the northeast-trending Mexia fault in East Central Texas. Production in the Wortham field is obtained from Woodbine sand at between 2950 and 3000 feet, the oil accumulating in a small elongated structure that is sealed up-dip on the upthrow side of the main fault. The oil is found in two and often three sands of varying permeability, and which range in thickness from 3½ to 17 feet. Thin shale breaks occur between the oil sands in many of the wells. Minor faulting within the field has broken up the formations, making drilling conditions uncertain, especially in attempting to establish a consistent correlation point for determining the location of the oil-water contacts.

Rapidly Depleted

The field was discovered by the late Col. A. E. Humphreys, operating as Boyd Oil Company, in November 1924, with the completion of two wildcat wells that topped the Woodbine sand within a few days of each other. Initial production of the first well was over 1000 barrels, and the second came in for approximately 8000 barrels per day. Within a week after these two wells were brought in, there were 40 or 50 rigs in the process of construction or actually drilling. Because of the many small blocks of acreage that were held by the companies in the area, a remarkably vigorous drilling campaign was started, and within four months after the discovery of the Woodbine production, more than 95 percent of the field was drilled up. In January of the following year, 1925, three months after the two discovery wells were brought in, the peak production of the field was reached, with the production for that month amounting to 3,514,194 barrels, from 158 wells. Over 300 wells were ultimately drilled in the field. In the early days of the Wortham field, there was considerable gas pressure, and wells flowing initially for as high as 10,000 barrels per day were not uncommon.

As proration had not yet ap-

peared on the horizon at this early date, the wells were allowed to produce at near-capacity rates, which soon brought about early and premature channeling of water through the oil sand, and by-passing of much of the oil. This resulted in production of rapidly rising percentages of water, and it soon became uneconomical to produce the wells because of excessive lifting costs, and it became necessary to begin abandonment of a great majority of the wells in the field. The rapid decline in annual production from nearly 16,000,000 barrels in 1925, to 647,000 barrels in 1928, and from there to only 52,000 barrels by 1932, attests to the rapidity with which the wells in the field went to water and had to be abandoned.

Not including several stripper wells producing from a shallower sand, the number of Woodbine wells in the field finally dwindled down to but two or three. These wells have continued to produce small amounts of oil up to the time of the present drilling activity.

Most of the activity in the present revived drilling campaign, which began in 1940, is being undertaken by two operators, and to date the drilling has been carried out principally in a line roughly paralleling and fairly close to the fault, in the northern three quarters of the field.

The new wells in most instances are being "five-spotted", or drilled in the center of four of the old locations. Rotary is used in all cases to drill down to the top of the sand, or to a point a foot or two above it, at which point the casing is set before drilling on into the sand. The casing program usually consists of several joints of surface pipe set 80 to 120 feet, for surface water protection, and a 5½- or 7-inch string cemented just above the oil sand. A liner of suitable size is set on bottom after the oil sand has been drilled in to the desired depth.

Completion Is Critical Phase

The completion phase of the drilling is regarded as the most critical; the method and care taken in drilling into the sand determining to a great extent just how great a water cut will have to be ultimately handled during the remainder of the life of the well. Each well is a distinct problem in itself, as in most cases, strong water flows are encountered at irregular intervals throughout the sand. Some wells encounter water along with the oil in the oil sands; still others find that, with the exception of normal bottom water, certain sand lenses are as yet uncontaminated by water, and that certain strata between the several oil sands produce nothing but water. The majority of the wells, however, have conditions that represent a combination of all of the above cases. The hydrostatic head of the Woodbine water in this field is quite strong, the static fluid levels in the wells rising up to as high as 900 to 1700 feet from the surface.

Yearly Production Figures of Wortham Field

	Barrels
1924	888,856
1925	15,946,673
1926	2,801,123
1927	1,134,231
1928	647,472
1929	410,810
1930	287,825
1931	126,609
1932	51,864
1933	44,747
1934	38,414
1935	35,675
1936	30,000
1937	31,000
1938	27,943
1939	23,861
1940	47,054*
1941	64,049†

*Active redrilling of old Woodbine sand started in middle of 1940.
†Approx. total first 6 months 1941.

The oil sands, however, are of a lower pressure than the water sands, so the necessity for care in completion can readily be seen. The sands are comparatively easy to "drown out" if water is allowed to stand over them for any appreciable time. For this reason also, it is impractical to use rotary mud in drilling into the formation, as the mud will be forced back into the sands for some distance, to effectively mud off much of the productive oil sand. As the mud blocks off part of the production, it then becomes necessary to drill deeper to take in more sand, which operation, in many instances means that more water will be encountered and handled in order to get the additional oil.

The two principal operators who are now drilling in the field, represent the two schools of thought, in the matter of properly completing the wells, in view of the complicated nature of the bottom-hole conditions encountered. One operator, who holds the largest portion of the acreage, and who up to the present has drilled 18 wells, has adopted the reverse circulation method for completing his wells. In this method, the well is drilled in with oil, the cuttings being carried from the bottom of the hole, and on up through the tubing string which is used as drill pipe. Through this method a very accurate record and check can be kept at all times while the bit is slowly drilling ahead. Water- and oil-bearing sands are easily detected within a matter of a few minutes of the actual penetration by the bit. At the desired point, the drilling is stopped, the hole bailed thoroughly, and a liner is run. No swabbing is necessary, and the well is then put on the pump.

Through experience gained in the drilling thus far, this operator believes that in a majority of the cases, more net oil is obtained from a well where at least one, and preferably both of the upper sands are open to production. More water has to be produced to obtain this extra production of oil, but it is his belief that if the well is not pumped too hard, the water, acting on the principle of a waterflood, will ultimately bring more oil into the hole. In certain cases, however, where the water volume is too great, it is then more practical to penetrate the sand only a short distance, and to be content with a smaller rate of oil production, as much damage can be done to the oil sands if too great a head of water is allowed to stand on the formation.

The other operator has used cable tools almost entirely in completing the five wells that he has so far drilled in the field. In nearly every case, these wells were completed and put on production after having penetrated only a short distance, sometimes only a foot or two, into the top of the sand. This practice often results in a little less production, but generally less water has to be handled. As a rule, the lower the water cut, the lower will be the operation fluid level, so in this latter case, with a lower volume of water production, the wells must be tubed to a greater depth.

Some coring of the oil sands has been done with regular rotary methods, but cores are very unsatisfactory in the upper sand due to the softer, more unconsolidated nature of this formation. The second sand is somewhat tighter, and yields better cores.

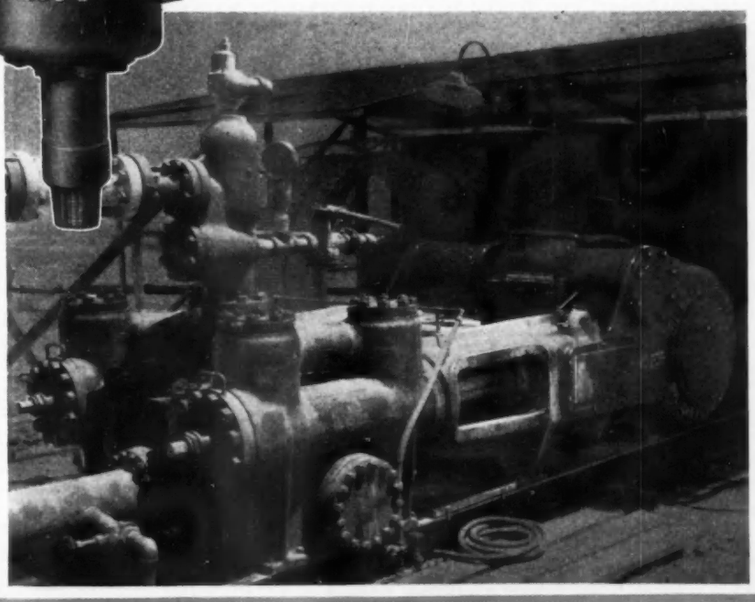
One well that happened to be drilled slightly off structure into

Another deep-well performance record for "OILWELL" equipment

THE LARGE-DIAMETER HOLE (8½ inches at the final depth of 14,622 feet) made the work of this veteran "Oilwell" 27½-inch Oilbath Rotary a particularly tough assignment. Direct-driven by an electric motor, this sturdy machine took the job in its stride and performed with the smoothness and efficiency that are typical of "Oilwell" Rotaries. As now manufactured, "Oilwell" 27½-inch Oilbath Rotaries are of the same reliable general construction with refinements resulting in greater capacity, longer life, and less frequent servicing.

HANDLING RECORD STRINGS of drill pipe is a common occurrence for "Oilwell" Swivels. In drilling Honolulu Oil Corporation's deep well to its final depth an "Oilwell" No. 150-B Swivel, like the one illustrated, supported an extremely heavy string made up largely of 4½-inch drill pipe and including six 40-foot drill collars weighing 95 pounds per foot. An "Oilwell" Swivel of the same series was used in drilling the only well deeper than this one to its record depth of 15,004 ft.

AN "OILWELL" NO. 14-P (7¼" x 14") Power Slush Pump, which had been in service since 1936, bucked pressures far exceeding its rated capacity in drilling this well to 14,110 feet. For the final 512 feet the illustrated "Oilwell" No. 20-P (7¾" x 20") Pump was placed in service after several years of deep drilling performance on other rigs. This high-capacity power pump has ample volume and pressure ratings for the toughest service in any field.



AGAIN and again "Oilwell" equipment has proved its inherent dependability and reserve capacity in drilling to extreme depths. A recent outstanding example is Honolulu Oil Corporation's 14,622-foot well at Buena Vista Hills, California—the second deepest well in the world and the deepest ever drilled with electric power. An "Oilwell" Swivel supported the long string of drill pipe, an "Oilwell" Rotary rotated the string, and "Oilwell" Power Pumps provided vital mud circulation.

It is significant that the "Oilwell" equipment used on this deep well was by no means new. Most items were originally placed in service 3½ years before this well was spudded in on June 1, 1940. This performance, following such a long service life, is clear evidence that "Oilwell" machinery is built to maintain its initial high efficiency.

Deep-well performance records call attention to the outstanding job that is being done in the oil fields by both men and machinery. Not so sensational, but of utmost importance to the equipment buyer, is the consistently efficient day-to-day work performed by "Oilwell" equipped rigs. Send for specifications.

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an extremely tight phase of the oil sand was shot with nitroglycerine, and has apparently been brought in as a fairly good well.

High Water Cuts

Water cuts are extremely high, and depending up the method of completion used, as outlined above, range from something less than 50 up to as high as 98 percent water. Fortunately, there is no problem in treating out the oil, which is 39 to 41 regrees API gravity, as the water readily drops out in the tanks without the aid of either chemical or steam heat. A factor contributing to the ease with which the water is separated out is the fact that the fluid leaves the well at between 123° and 125°.

Initial potentials of the wells so far drilled have ranged between 15 and 75 barrels per day, net oil. The Texas Railroad Commission has established a maximum allotment of 30 barrels per day, and as most of the wells in the field easily make their allowable, it is difficult to determine the rate at which the wells have been declining since they have been brought in. Several potential tests that have been retaken on a few of the wells have seemed to indicate that the field as a whole may be expected to produre economically for a number of years yet, although several wells have apparently dropped several barrels from their originally established potential figure.

One of the first wells drilled, which was completed in May 1940, indicated a pumping potential at that time of 33 barrels of oil per day with a 93 percent water cut. In August of 1941, some 15 months later, the well was tested again under the same strokes per minute, and other identical pumping conditions, and it showed exactly the same potential. Indicating that it may take an appreciable time for the wells to establish their individual drainage cones, one well that tested 17 barrels per day in December 1940, was retested in August of 1941, under the same conditions, and was found to now have a potential of 33 barrels, with the water cut remaining the same.

Some of the wells however, are producing under conditions which, if not soon remedied, may make unrecoverable many thousands of barrels of oil from this "resurrected" field. Water standing over the oil sand is gradually killing the productive ability of some of the wells that happened to have a greater flow of water than the others. It has been determined through studies of operating conditions of high water cut wells in other fields of the country, that in order to produce a well effectively and economically for a maximum time, the fluid, which of course is mostly water, must be removed just as fast as it comes into the hole, or as nearly thereto as possible. If this is not done, the water that is not produced will rise in the hole, to build up a high hydrostatic head of water that will ultimately drown out and cause to be non-productive, those remaining portions of the sand that are still producing the oil.

Because the allowables have been fixed at 30 barrels daily, these wells that are able to produce, at a stabilized rate, perhaps only 5 or 10 more barrels, are forced to be pumped from a point much higher in the well, because the operator is not permitted to produce the several hundred barrels of water that would normally accompany the additional small oil production. This unremoved water then is accumulated in the casing to create the condition explained above, tending to drown out the oil sands.

Wells are pumped, in nearly every instance, with pumping units powered by gas engines which run off of the gas produced at either the tubing or casing head. Most of the wells still produce sufficient gas, despite the heavy withdrawals in the early days of the field, to operate the engines with some volume to spare. Tubed to points anywhere from 1600 down to 2800 feet, the wells are pumped during normal operations at moderate speeds of from 12 to 22 strokes per minute, and at 22- to 60-inch stroke. Most of the wells are pumped on a 24-hour schedule.

With 23 new wells already drilled into the old Woodbine sand, and with results to date appearing to be generally favorable, the present operators are currently planning on drilling at least 10 or 12 additional wells within the next year or so. The one recognized danger point which is watched carefully is that of spacing the wells too closely. The present approximately 20-acre spacing is considered to be the maximum under which profitable operations could continue for the duration of the rejuvenated life of the field.

New wells at Wortham are spaced as far as possible from the old locations, in an attempt to intersect new phases of the old sands that have not been contaminated with water. Note remains of old foundations in foreground.

INTERNATIONAL TracTracTors Lay Pipe Lines for DEFENSE!

Pipe line maintenance near Geronimo, Ariz., where sudden rains cause washes that require smoothing out and filling in. This International TD-9 with bullgrader is owned by El Paso Natural Gas Co., El Paso, Tex.

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Gas Mixing in Porous Media

By R. V. MERTZ* and R. L. HUNTINGTON
University of Oklahoma, Norman, Oklahoma

IT IS NOW fairly well established that the hydrocarbons in a distillate structure are as a rule in a single phase fluid state. This is the basis for legal definitions of distillate structures, to distinguish them from normal oil and gas structures.[9] Due to the phenomenon of retrograde condensation,[7] the heaviest hydrocarbons are seldom present as a liquid in the formation, on account of the combination of extremely high pressures and moderately high temperatures.

It has also been shown, by direct experiment, that the heavier components of the single phase fluid will condense into liquid form if the pressure is reduced, with or without a reduction in temperature.[2] Consequently, if the reservoir fluid of a distillate structure be produced without providing some means for maintaining the original high pressure, the reduction in pressure will eventually cause a part of the distillate to condense in the formation.

In recent years there has been a large increase in the number of plants established for the production of distillate, for repressuring and for pressure maintenance through recycling or returning the gaseous hydrocarbons to the producing formations.

An important phase of the production operations connected with all these processes is the return of the noncondensible gases to the producing formations, in such a way that the highest ultimate yield of products may be obtained under optimum economic conditions.

In the processes for distillate production, it would be ideal if for each cubic foot of lean or stripped gas injected into the reservoir, an equal quantity of rich or distillate-bearing fluid could be pushed out of the underground formation and its contained distillate recovered.

On the other hand, if each cubic foot of lean gas injected were to mix intimately and instantaneously with the original fluid present, the yield would rapidly decline so that it would be uneconomical to operate a plant for distillate production.

Actual field operations fall somewhere between these two extremes. The nearest approach to the ideal might be achieved in a reservoir of uniform porosity and permeability wherein a line drive was maintained. That is, the injected gas would progress through the formation on a line front without trapping any large quantities of the distillate-laden fluid.

Even though the uniformly permeable formation were found and a line drive established and maintained, there would still be some loss in efficiency in displacing the rich fluid due to some mixing taking place at the line or plane of contact between the two fluids.

Experimental Investigation

Previous Work

Duker et al[4] carried out some laboratory experiments and presented data to show that at atmospheric pressure under conditions of one dimensional flow, the amount of mixing of two gases in a sand body was inversely proportional to the rate of flow. All of these data were collected under conditions which gave Reynolds numbers less than 0.5 in consistent units.

Schmidt and others[8] performed laboratory experiments and presented data to show that the amount of mixing of two gases under static storage conditions in a porous reservoir varied inversely with the pressure on the reservoir. For a given period of contact between the two gases, the amount of mixing decreased as the pressure on the system was increased in the range from atmospheric up to 500 pounds per square inch gage.

These experimenters definitely contributed to the knowledge of the mixing of gases in porous reservoirs. For the problem of mixing of gases under conditions experienced in recycling and distillate production, however, there remained the question of translating atmospheric and low pressure data to conditions of high pressures comparable with those found in actual practice.

Scope of This Investigation

Due to the difficulties of designing laboratory reservoirs for high pressure, this work has been limited to conditions of one dimensional flow. It would have been more pertinent perhaps to use gases actually occurring in natural reservoirs, but due to the convenience of using two gases which could be easily analyzed, the study was conducted on the following systems:

(1) Hydrogen and carbon dioxide,
(2) Compressed air and natural gas, and
(3) Compressed air and nitrogen.

Although there are diverse ideas relating to the proper patterns and spacing of wells for the production of distillate-bearing gas, the most logical approach seems to call for some arrangement of producing and input wells so as to approximate the ideal line drive through the porous formation. In order to afford sufficient opportunity for the equalization of pressure gradients throughout the reservoir, the input and producing wells should be spaced as far apart as possible. If these precautions are taken then the actual flow through the

* Present address, Phillips Petroleum Company, Odessa, Texas. The original data for this paper are taken from a thesis submitted by R. V. Mertz in partial fulfillment of the requirements for the Master of Science degree in Chemical Engineering, University of Oklahoma, 1941.

reservoir should approximate one dimensional flow. This investigation was undertaken in order to study the effect of pressure and mass velocity on the amount of mixing between two fluids under conditions of one dimensional flow.

Apparatus

A schematic diagram of the apparatus used in this investigation is shown in Figure 1. An extra heavy one-inch steel tube 10 feet long was coated inside with shellac, then filled and packed to minimum porosity with a sample of Wilcox sand secured from an outcrop near Roff, Oklahoma. This sand-filled tube was supported in a vertical position and connections made at the bottom for a pressure gage and gas supply. The outlet was manifolded so that the effluent gas or mixture could either be switched to the Orsat apparatus or through the wet test meter.

Materials Used

(1) Hydrogen Analysis

Commercial hydrogen secured from Air Reduction Sales Company, Oklahoma City, Oklahoma

Component	*Mol percent*
Hydrogen	99.6
Inert gases	0.4
	100.0

(2) Carbon dioxide Analysis

Commercial carbon dioxide

Component	*Mol percent*
Carbon dioxide	99.0
Nitrogen	1.0
	100.0

(3) Nitrogen Analysis

Commercial oil-pumped nitrogen

Component	*Mol percent*
Nitrogen	99.8
Oxygen	0.2
	100.0

(4) Compressed air Analysis

Commercial water-pumped air

Component	*Mol percent*
Nitrogen plus inert gases	79.4
Oxygen	20.6
	100.0

The above gases were obtained from the Air Reduction Sales Company, Oklahoma City.

(5) Natural gas Analysis

Commercial natural gas secured from distribution lines of Oklahoma Natural Gas Company, Norman, Oklahoma

Component	*Mol percent*
Methane	88.2
Ethane	8.9
Nitrogen	2.8
Carbon dioxide	0.1
	100.0

(6) Sand Analysis

Wilcox unconsolidated sand from outcrop near Roff, Oklahoma. Grains are well rounded and show the following:

Tyler Mesh	*Retained on screen Percent by wt.*
24	0.92
35	0.70
50	1.80
65	13.90
100	57.90
150	18.68
200	5.10
Pan	1.00
	100.00

Average grain diameter 0.0055 inches. Porosity of sand-filled tube, 35.8 percent; permeability 10 darcies.

Procedure

The nitrogen, compressed air, carbon dioxide, and hydrogen were obtained in commercial compressed gas cylinders under high pressure, except for the carbon dioxide, which was partially liquefied. Natural gas was available at pressures up to 600 pounds per square inch gage by using a laboratory compressor and storage tank.

In each test the sand-filled tube was completely purged at atmospheric pressure with the gas that was to represent the original reservoir fluid. The outlet valves were then closed and the gas allowed to flow into the tube until the desired pressure was attained. The inlet valve on the bottom of the tube was then closed and gas from the second cylinder, representing the recycle or dry gas, was connected to the inlet line. The pressure in the line was brought up to the pressure previously attained in the tube by allowing gas from the second cylinder to flow into the line until the desired

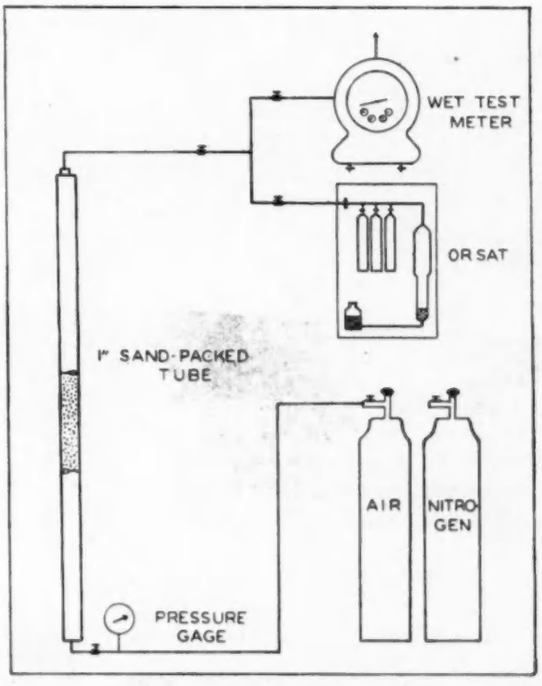

FIGURE 1
Schematic diagram of apparatus.

pressure was reached. The rate of production was then adjusted by opening the control valve on the outlet of the tube enough to allow the correct amount of gas to be produced through the wet test meter per unit of time as measured by a stop watch. The outlet valve on the cylinder containing the recycle gas was opened just enough to replace the gas being taken from the tube, thus maintaining constant pressure.

Samples of the gas or mixture being produced were taken at regular intervals and analyzed by means of the Orsat apparatus. These samples were added to the quantity measured by the wet test meter at the time of sampling, thereby showing the exact amount of gas produced at any instant. Samples were taken until the completion of the test at which point the sample con-

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For three long years...day after day... week after week...two Superior Gas Engines have supplied power for the pumps in the East Whitepoint Station of the Republic Pipe Line Company until seven million barrels of crude have gone through a six-inch line to Corpus Christi six miles across the bay.

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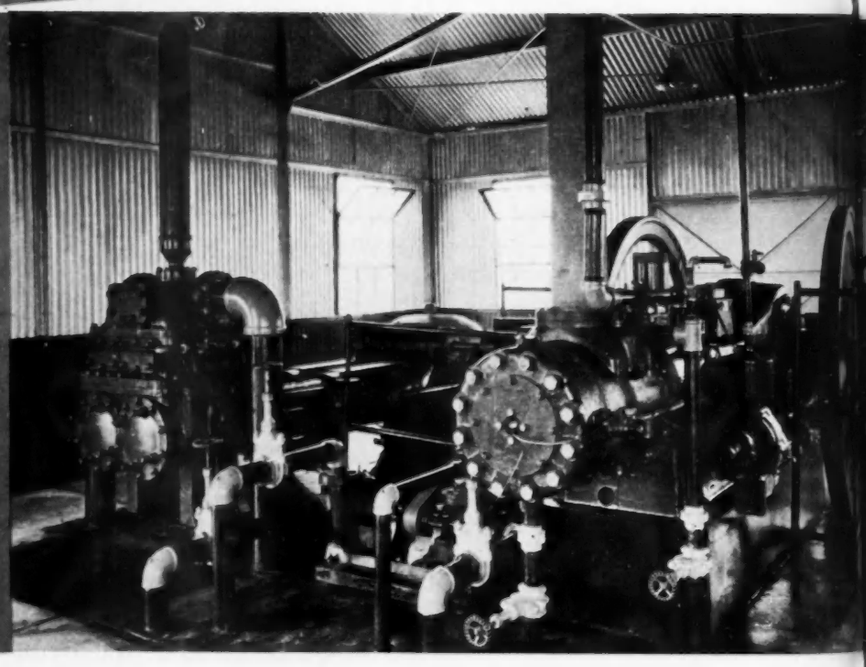

A 50 H.P. Type C Superior Engine drives the reciprocating gathering pump which brings the oil from the field to the pump station.

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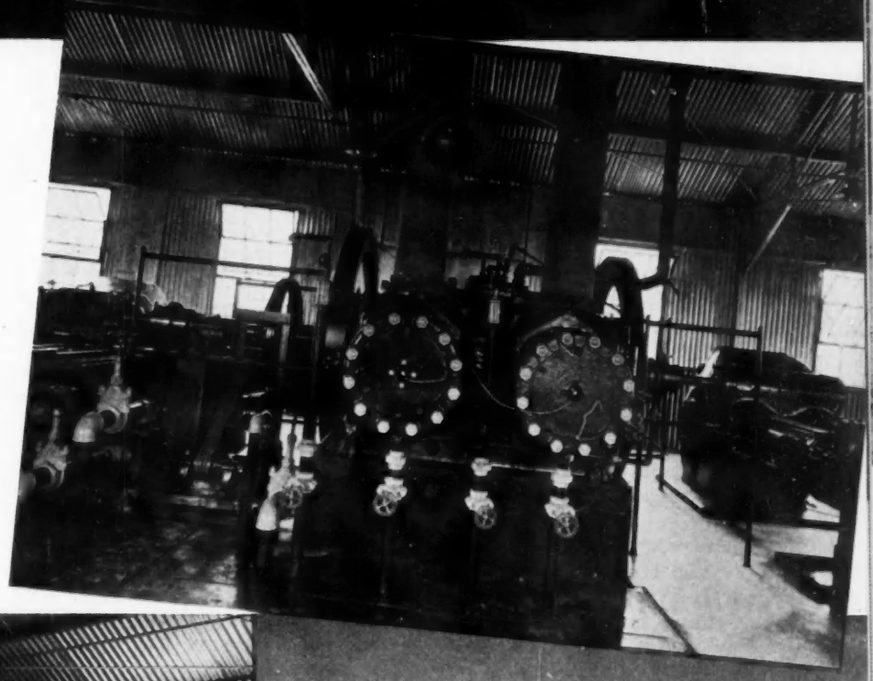
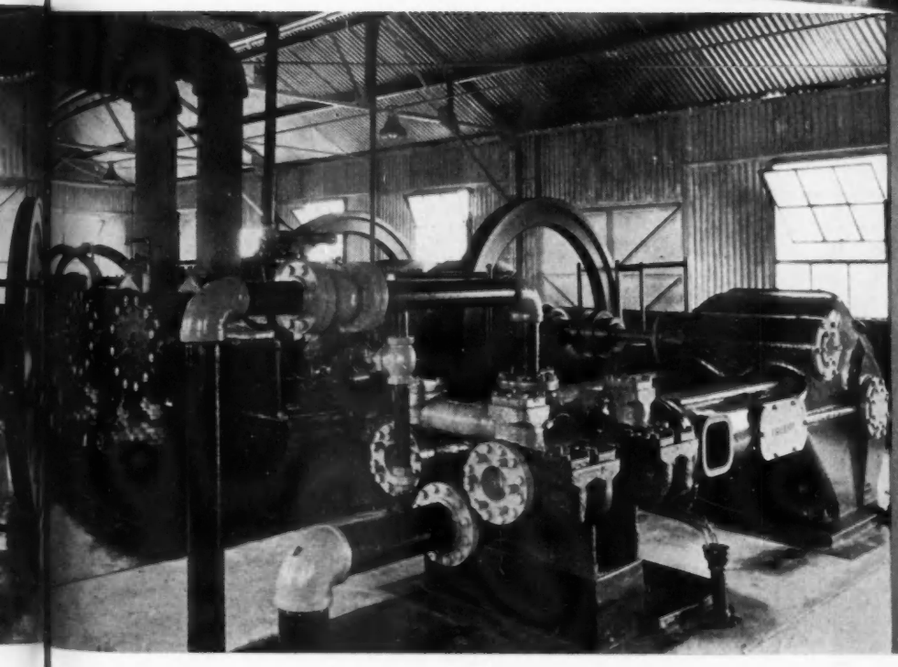


This end view shows how the 160 H. P. Type BT Superior Gas Engine is connected directly to the two main oil pumps. The engine's cooling water pump is driven through V-belts.



The main power unit is a 160 H. P. Type BT Superior Gas Engine driving two reciprocating pumps.

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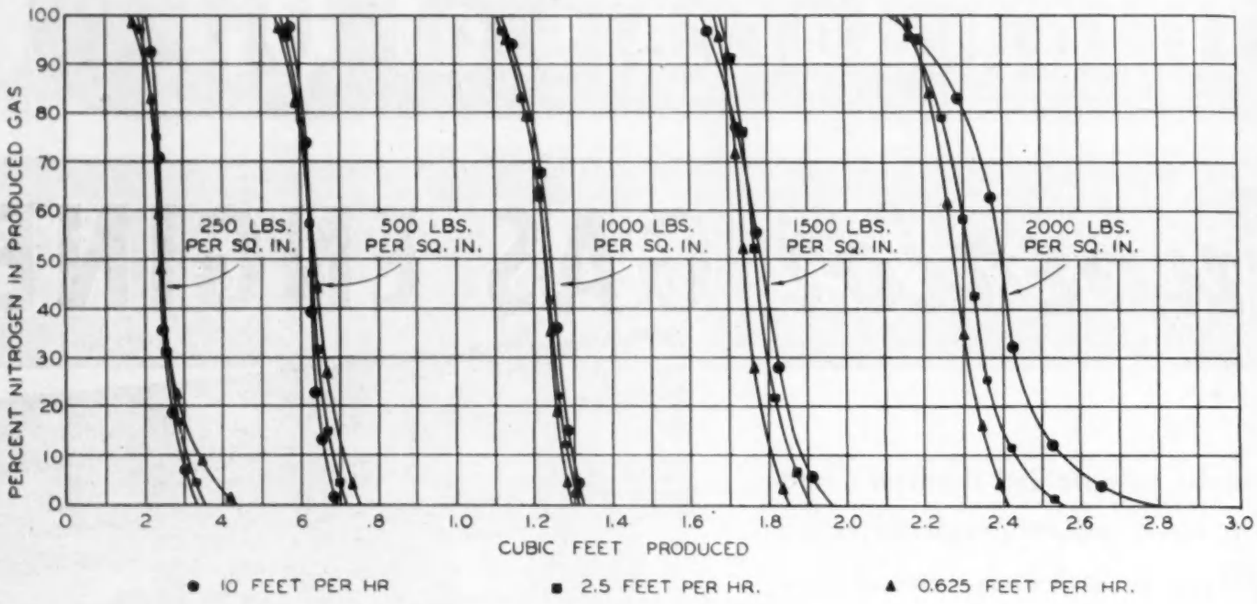
PERCENT NITROGEN IN PRODUCED GAS
CUBIC FEET PRODUCED
250 LBS. PER SQ. IN.
500 LBS. PER SQ. IN.
1000 LBS. PER SQ. IN.
1500 LBS. PER SQ. IN.
2000 LBS. PER SQ. IN.
10 FEET PER HR
2.5 FEET PER HR.
0.625 FEET PER HR.

FIGURE 2

Effect of pressure and linear velocity on composition curves.

Original Gas	Injected Gas	Linear Velocity
—●—Nitrogen	Air	10 feet per hour
—▲—Nitrogen	Air	2.5 feet per hour
—■—Nitrogen	Air	0.625 feet per hour

tained only the gas injected, showing that all the original reservoir gas had been displaced.

Discussion of Results

Hydrogen and Carbon Dioxide

The results obtained from the one dimensional flow tests are presented in Figures 2, 3 and 4, the recycle ratio is here defined as the ratio of total mols of gas mixture produced to mols of original reservoir gas produced when the original reservoir gas has been completely swept out of the reservoir. Figure 3 shows a definite effect of gravity on the amount of mixing. In the tests where the heavier carbon dioxide was the original reservoir gas, there was considerably more mixing than when the lighter hydrogen gas was made the reservoir gas originally in place. For all the tests made in this investigation the flow was upward through the tube. Figure 3 also shows the effect of pressure on the amount of mixing. It is presumed that at the higher pressures the freedom of movement of the gas molecules is restricted and there is less chance for mixing to take place even though the contact between the two gases is of the same duration.

Compressed Air and Natural Gas

For the system using compressed air and natural gas, Figure 3 shows the mixing curve to be intermediate between the two curves for hydrogen and carbon dioxide.

Compressed Air and Nitrogen

Figure 5 is a plot of dimensionless ratios derived

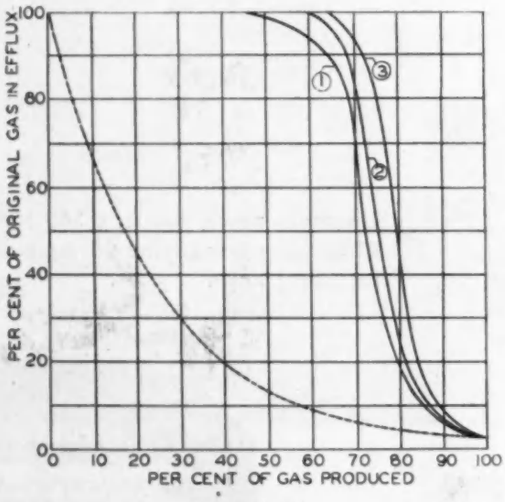

FIGURE 3

Effect of pressure and gravity on recycle ratio.

	Original Gas	Injected Gas	Linear Velocity
(1)	Carbon dioxide	Hydrogen	2.5 feet per hour
(2)	Air	Natural gas	2.5 feet per hour
(3)	Hydrogen	Carbon dioxide	2.5 feet per hour

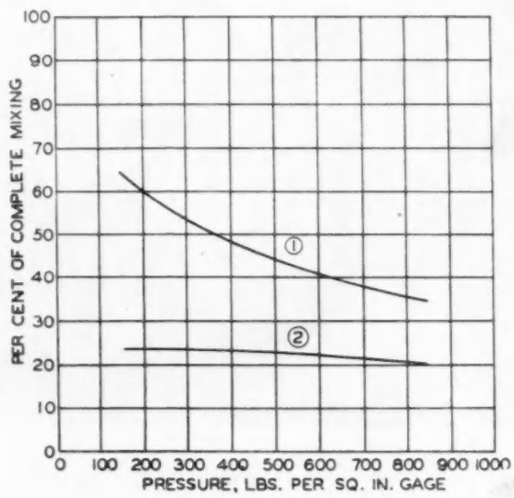

FIGURE 4

Effect of pressure and gravity on the amount of mixing.

	Original Gas	Injected Gas	Linear Velocity
(1)	Carbon dioxide	Hydrogen	2.5 feet per hour
(2)	Hydrogen	Carbon dioxide	2.5 feet per hour

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LEBANON DESIGNATION	GOVERNMENT SPECIFICATIONS	S. A. E. ANALYSIS SPECIFICATIONS	A. S. T. M. SPECIFICATIONS
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Ⓛ	Class 1	1020	A—215—39T GR.—A—2—W
Ⓛ	Class 2	1025	A—27—39 GR.—B
Ⓛ 1	Class 3	X1030	A—148—36 CL.—B GR.—2
Ⓛ 2	Class 4	X4130	A—148—37 CL.—B GR.—3 CL.—C GR.—2
Ⓛ 3	Class 4	4140	A—148—36 CL.—C GR.—3
Ⓛ	Navy Dept. 49S1 J&K Class B	1020	A—215—39T GR.—A—2—W
Ⓛ	Class D	1025	A—27—39 GR.—B
Ⓛ 1	Class A	X1030	A—148—36 CL.—B GR.—2
Ⓛ 1	Class F	X1030	A—148—36 CL.—B GR.—2
Ⓛ	Class C	1025	A—27—39 GR.—N—2
Ⓛ 9	Navy Dept. 46S33		A157—40 GR.—C1
Ⓛ 22 Ⓛ 21 Ⓛ 22 M	Navy Dept. 46S27a Grade 1 Grade 1 Weld Grade 7	30905 30705 30615	A157—40 C9a
Ⓛ 1 Mod.	R1XS192	X2030	
Ⓛ HCA #2 Ⓛ HCA #3	Ordnance Dept. U.S. Army AXS492 AXS493	Cast Steel Armor	

All Government specifications are for cast steel.

The Society of Automotive Engineers (S. A. E.) specifications cover rolled steel, but are the approximate corresponding chemical analyses.

The American Society for Testing Materials (A. S. T. M.) specifications are all cast steel specifications.

The table shown is from the Lebanon Reference Chart listing comparable classifications of U. S. Government, S.A.E. and A.S.T.M. for Circle Ⓛ Steels. The complete chart . . . which includes analysis and physical properties as well as specifications . . . is available to executives, engineers and metallurgists upon request.

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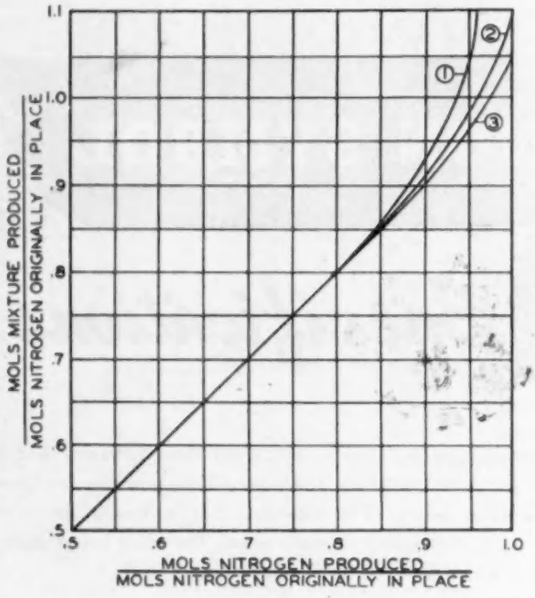


FIGURE 5

Ratio of mixture to nitrogen produced at various pressures and linear velocity of 10 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	Nitrogen	Air	Atmospheric
(2)	Nitrogen	Air	2,000 lbs. per sq. in. gage
(3)	Nitrogen	Air	500 lbs. per sq. in. gage

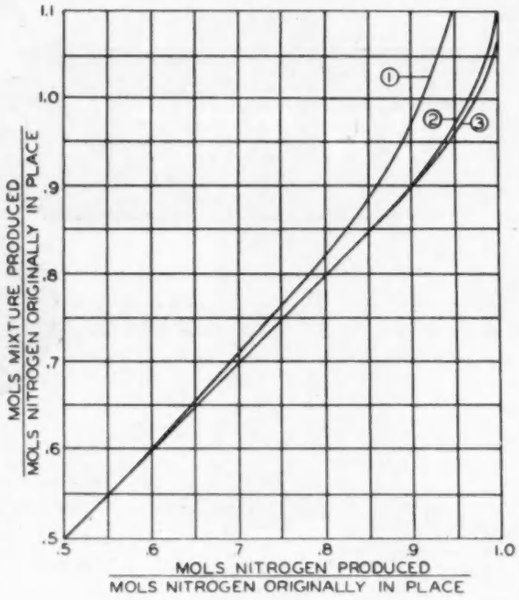


FIGURE 6

Ratio of mixture to nitrogen produced at various pressures and linear velocity of 2.5 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	Nitrogen	Air	Atmospheric
(2)	Nitrogen	Air	2,000 lbs. per sq. in. gage
(3)	Nitrogen	Air	500 lbs. per sq. in. gage

from the data collected from tests using nitrogen as the original reservoir gas and compressed air as the injected or recycle gas. This is a plot of the ratio of gas mixture produced to nitrogen originally in place against the ratio of nitrogen produced to nitrogen originally in place when the linear velocity was held constant at 10 feet per hour and the pressure varied from atmospheric to 2000 pounds per square inch gage. Figure 5 shows that up to 80 percent of the original reservoir fluid produced, the pressure has no effect on the amount of mixing. At this linear velocity of 10 feet per hour pressure has no great effect on the amount of mixing. However, there is a reversal in the trend of the curves as shown by the fact that curve 2 indicates more mixing than curve 3 even though curve 3 was plotted from data gathered from the test run at an intermediate pressure.

Figure 6 is a similar set of curves except that the linear velocity is 2.5 feet per hour. Figure 7 is a set of

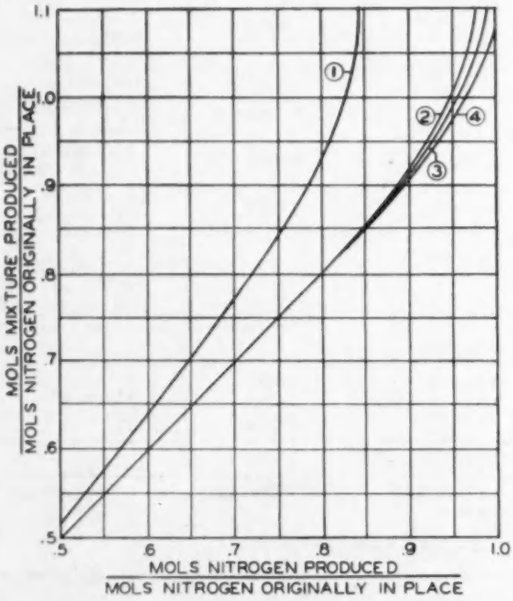


FIGURE 7

Ratio of mixture to nitrogen produced at various pressures and linear velocity of 0.625 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	Nitrogen	Air	Atmospheric
(2)	Nitrogen	Air	250 lbs. per sq. in. gage
(3)	Nitrogen	Air	500 lbs. per sq. in. gage
(4)	Nitrogen	Air	1,000 lbs. per sq. in. gage

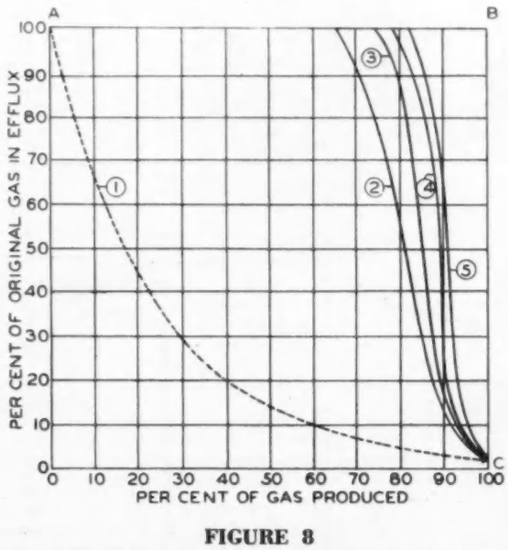
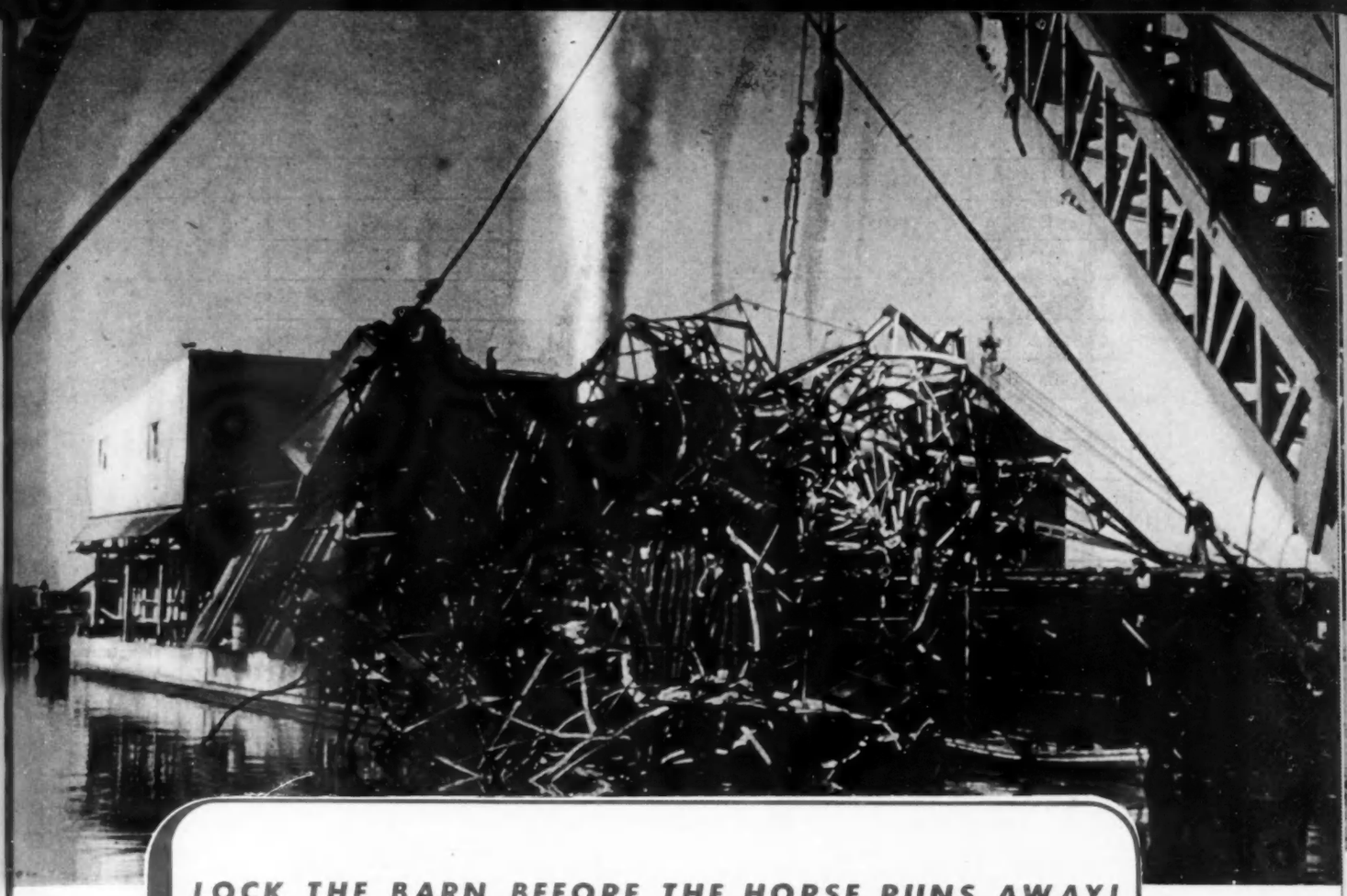


FIGURE 8

Variation of efflux composition with pressure at constant linear velocity of 10 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	(Calculated complete mixing.)		
(2)	Nitrogen	Air	Atmospheric
(3)	Nitrogen	Air	2,000 lbs. per sq. in. gage
(4)	Nitrogen	Air	250 lbs. per sq. in. gage
(5)	Nitrogen	Air	1,000 lbs. per sq. in. gage



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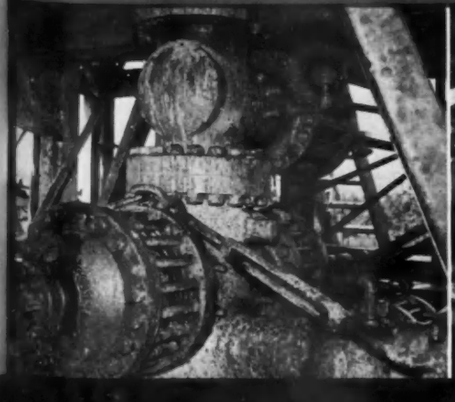

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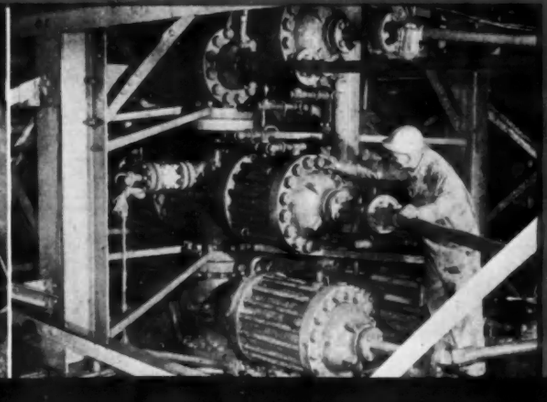

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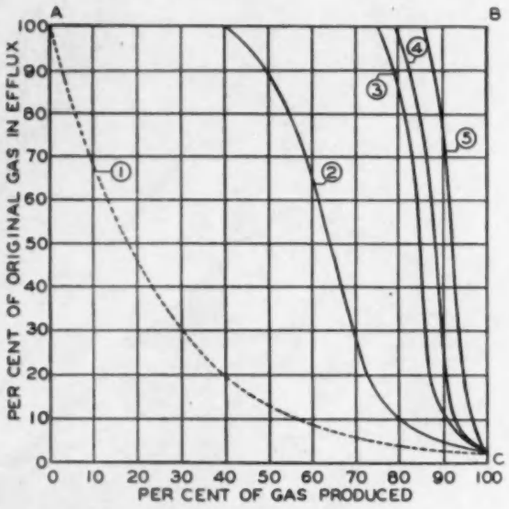


FIGURE 9

Variation of efflux composition with pressure at constant linear velocity of 2.5 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	(Calculated complete mixing.)		
(2)	Nitrogen	Air	Atmospheric
(3)	Nitrogen	Air	250 lbs. per sq. in. gage
(4)	Nitrogen	Air	2,000 lbs. per sq. in. gage
(5)	Nitrogen	Air	1,000 lbs. per sq. in. gage

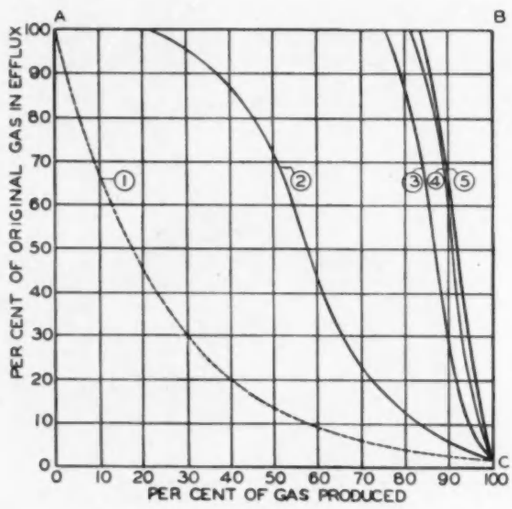


FIGURE 10

Variation of efflux composition with pressure at constant linear velocity of 0.625 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	(Calculated complete mixing.)		
(2)	Nitrogen	Air	Atmospheric
(3)	Nitrogen	Air	500 lbs. per sq. in. gage
(4)	Nitrogen	Air	2,000 lbs. per sq. in. gage
(5)	Nitrogen	Air	1,000 lbs. per sq. in. gage

curves for a linear velocity of 0.625 feet per hour and shows a greater effect of pressure on the amount of mixing. It will be noted that at the lower linear velocity a greater spread between the various curves is caused by increasing the pressure.

Figure 8 is a plot of composition of effluent gas versus percentage of total production when only two per cent of original reservoir gas was contained in the produced gas. The basis of percentage production was chosen so that the data for the different pressures could be plotted on a common basis and all the actual curves could be compared with a theoretically calculated perfect mixing curve. The theoretical curve shown in Figure 8 would be obtained if each increment of gas injected were immediately allowed to mix comlpetely with the gas contained in the reservoir. Figure 8 was plotted from data collected from tests run at such production rates as to give an apparent linear velocity in the tube of 10 feet per hour. The effect of varying the pressure is shown and the reversal in the trend of the curves is to be noted.

Figure 9 is a similar set of curves for the same pressures, but for a linear velocity of 2.5 feet per hour. Figure 10 shows the results obtained when the linear velocity was 0.625 feet per hour. In all three of these

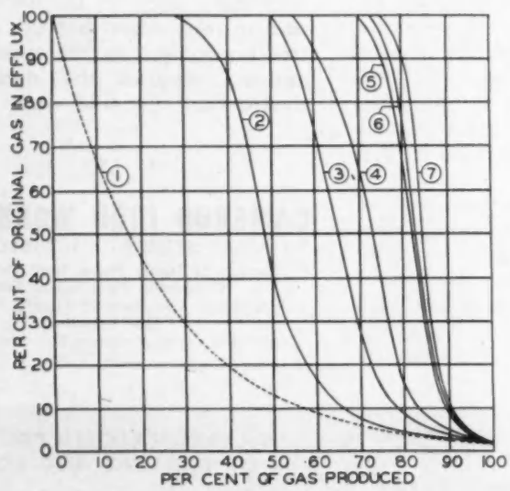


FIGURE 11

Effect of pressure and gravity on efflux composition at constant linear velocity of 2.5 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	(Calculated complete mixing.)		
(2)	Carbon dioxide	Hydrogen	150 lbs. per sq. in. gage
(3)	Carbon dioxide	Hydrogen	500 lbs. per sq. in. gage
(4)	Carbon dioxide	Hydrogen	850 lbs. per sq. in. gage
(5)	Hydrogen	Carbon dioxide	150 lbs. per sq. in. gage
(6)	Hydrogen	Carbon dioxide	500 lbs. per sq. in. gage
(7)	Hydrogen	Carbon dioxide	850 lbs. per sq. in. gage

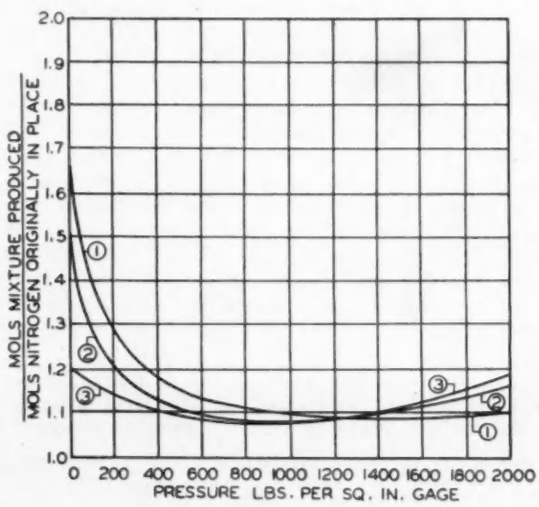

MOLS MIXTURE PRODUCED / MOLS NITROGEN ORIGINALLY IN PLACE
PRESSURE LBS. PER SQ. IN. GAGE
2.0 1.9 1.8 1.7 1.6 1.5 1.4 1.3 1.2 1.1 1.0
0 200 400 600 800 1000 1200 1400 1600 1800 2000
① ② ③

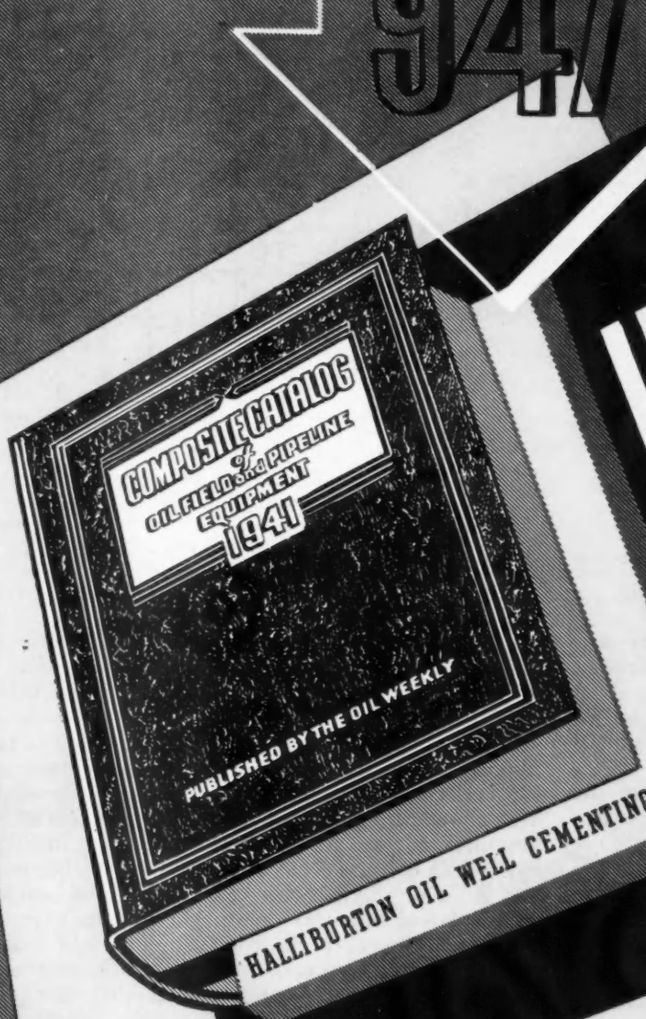
FIGURE 12

Variation of efflux composition with pressure at constant linear velocity of 2.5 feet per hour.

	Original Gas	Injected Gas	Pressure
(1)	Air	Natural gas	150 lbs. per sq. in. gage
(2)	Air	Natural gas	350 lbs. per sq. in. gage
(3)	Air	Natural gas	500 lbs. per sq. in. gage

(Dashed curve, calculated complete mixing.)

STARTING ON PAGE 947 IN '41 COMPOSITE CATALOG



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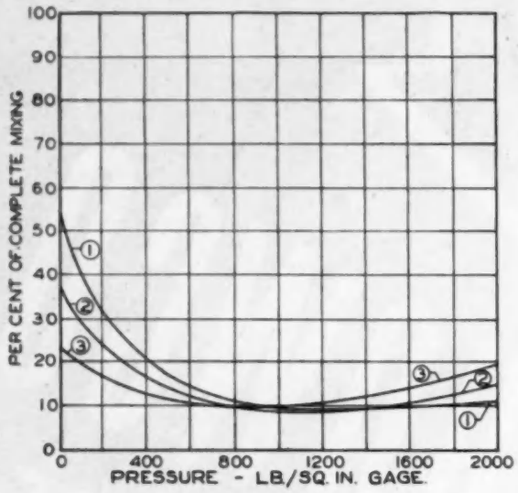

FIGURE 13

Effect of pressure on the amount of mixing.

	Original Gas	Injected Gas	Linear Velocity
(1)	Nitrogen	Air	0.625 feet per hour
(2)	Nitrogen	Air	2.5 feet per hour
(3)	Nitrogen	Air	10 feet per hour

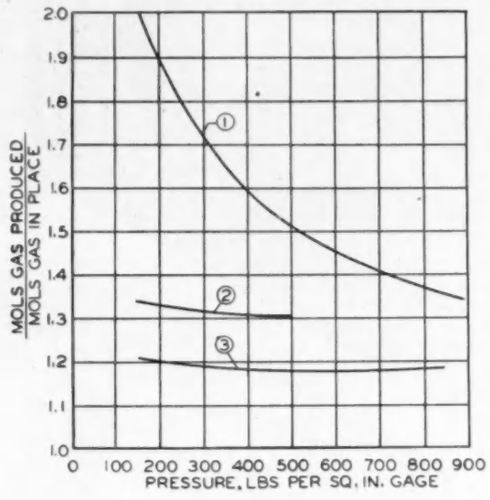

FIGURE 14

Effect of pressure on recycle ratio.

	Original Gas	Injected Gas	Linear Velocity
(1)	Nitrogen	Air	0.625 feet per hour
(2)	Nitrogen	Air	2.5 feet per hour
(3)	Nitrogen	Air	10 feet per hour

plots the reversal in the trend with increasing pressure is to be noted; that is, the amount of mixing becomes less as the pressure is increased up to a certain point for any given linear velocity. Above this point an increase in pressure causes an increase in the amount of mixing.

Figure 2 shows a set of curves obtained from the original data from a typical series of tests; the above

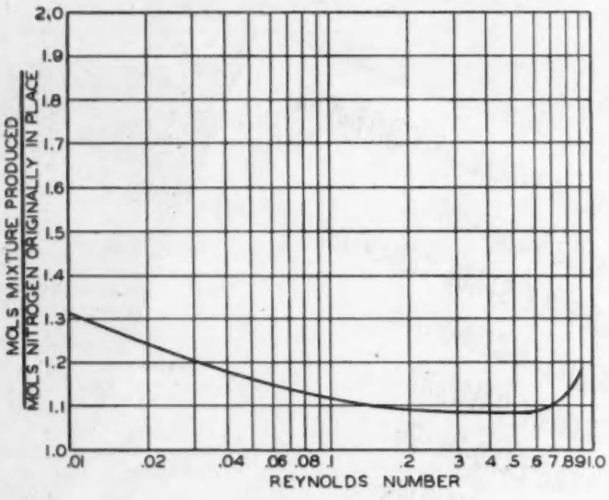

FIGURE 15

Effect of Reynolds number of recycle ratio.

Original Gas	Injected Gas
Nitrogen	Air

curves being derived from plots similar to those of Figure 2.

Figure 11 is a plot for the hydrogen-carbon dioxide system showing the decreased amount of mixing with increased pressure. These results follow the trend pointed out by Schmidt.[8] These curves show that no matter which gas is made the original reservoir gas, increasing pressure causes decreased mixing. Figure 12 is a plot of the data secured in the tests using air as the original reservoir gas and natural gas as the recycle gas. These results also show that at a constant linear velocity the amount of mixing decreases as the pressure is increased.

Figure 13 is a plot of the percent of complete mixing, obtained from Figures 8, 9, and 10 by comparison of the areas above the various composition curves to the area above the calculated complete mixing curve, versus pressure at the three linear velocities investigated, namely 10, 2.5 and 0.625 feet per hour. In Figures 8, 9, and 10, if no mixing were experienced, the composition curves would follow the path ABC. If the gases mixed completely, however, the composition would follow the dashed curves. The ratio of the area above the actual curves to the area above the calculated curve should then be a measure of the amount of mixing. If this ratio be expressed as a percentage, it should measure the percent of complete mixing. Figure 13 shows that for the system compressed air-nitrogen, the previously predicted behavior is followed until the pressure is increased to 1,000 pounds per square inch gage, increasing the linear velocity increases the amount of mixing, while below this pressure increasing the linear velocity decreases the amount of mixing. The latter is the behavior noted by Ducker[4] and Schmidt[9] in their studies using pressures up to 500 pounds per square inch gage.

Figure 14 is a plot similar to Figure 13 except that the recycle ratio is plotted against pressure and shows the ratio of total gas produced to original gas in place in the reservoir when all the original reservoir gas has been pushed out. These curves show that at the lower pressures, below 1,200 pounds per square inch gage, the recycle ratio decreases when the pressure is increased and that the recycle ratio decreases as the linear velocity is increased. For pressure above 1,200 pounds per square inch gage the opposite behavior is noted. According to Figure 14 the recycle ratio is little affected by the linear velocity at approximately 1,300 pounds per square inch gage.

Correlation with Reynolds' Numbers

Figure 15 reduces the pressure and linear velocity effects on the recycle ratio to a common denominator through the agency of the Reynolds' number. Fancher and Lewis[5] have presented a method of calculating

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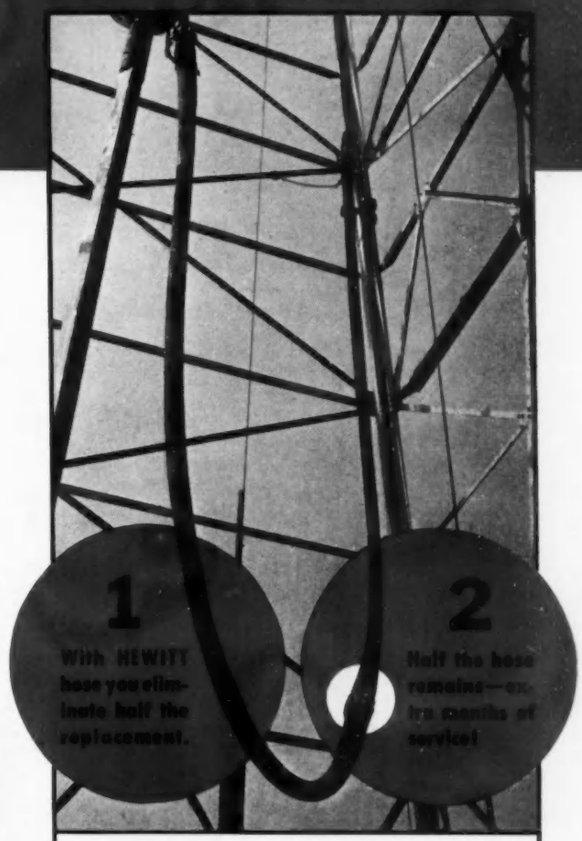

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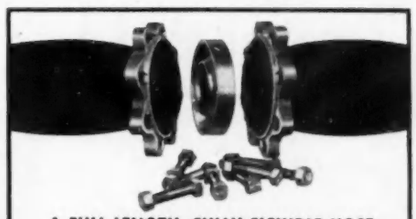

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Reynolds' numbers for gases flowing through sand bodies. Their Reynolds' numbers were criteria of turbulent flow under these conditions just as Reynolds' numbers are criteria of turbulent flow under ordinary conditions of fluid flow in pipe lines. They presented numberous data to show that turbulent flow began when the Reynolds' number was in the range 0.8 to 1.0 in consistent units. Reynolds' number is expressed as follows:

where $$R_e = \frac{d\,u\,\rho}{\mu} \qquad (1)$$

d is the average grain diameter in feet,

u is the apparent linear velocity in feet per second or volume under flowing conditions divided by the actual cross sectional area of the sand body,

ρ is the density of the gas in pounds per cubic foot under actual conditions, and

μ is the viscosity of the gas under actual conditions in English units.

When the data from which Figure 14 was derived were reduced to the common basis of Reynolds' number, the reversal of the trends was more easily explicable. For a given sand body and two different gases, the only factors of equation (1) which are subject to very much change are the density, ρ, and the linear velocity, u. The Reynolds' number, then, varies nearly directly with the linear velocity and density of the gas in question. If the Reynolds' number be increased up to 0.6 by increasing the linear velocity, the amount of mixing will be decreased since there is less time of contact between the two gases. If the Reynolds' number be increased by increasing the density of the gases, the amount of mixing will be decreased since there is a greater restriction of the molecular activity. These effects are shown in Figure 15 in the range of streamline flow for Reynolds' numbers up to 0.6 in consistent units.

Under conditions of turbulent flow any increase in the Reynolds' number through increased linear velocity or increased density intensifies the turbulent action of the gases and causes an increase in the amount of mixing.

Acknowledgment

The authors wish to express their appreciation to the American Gas Association, for making possible this investigation by their generous appropriation through their Natural Gas Supply Men's Fund Fellowship. They also wish to express their thanks to J. O. Adams, Roy E. Caruthers, Phil G. Wunsch and Robert R. Read, students in the School of Chemical Engineering, University of Oklahoma, for their excellent assistance in conducting tests and gathering data. Acknowledgment is made to D. T. MacRoberts for the helpful suggestions given in interpreting the original data.

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Value of Cooperative Engineering Field Committees

By C. C. RAE
Skelly Oil Company
Tulsa, Oklahoma

THE oil industry through technological progress has solved many difficult problems. It has built up tremendous oil reserves through improved exploratory technique and has developed mechanical equipment to drill and produce deep wells economically. At the same time, it has developed refinery technique, which in the face of rising labor costs has increased the recovery of gasoline from crude oil, with lowered prices to the consumer. Now another phase is taking shape in the form of cooperative pool development, which on the basis of past accomplishments will promote the proper utilization of reservoir energy to obtain greater oil recovery.

Considerable credit for the advance in mechanical and technical knowledge in the producing department of the oil business has been due to the free exchange of drilling and operating information. The engineers and field superintendents are in close touch with current experimental work and new equipment in their districts, besides constantly watching new methods of producing, treating, and handling oil production. The research work and technical studies financed by the larger operators, associations, or universities are made available to the industry through papers before technical sessions of various associations and publications devoted to the industry. It is the old story of American initiative, but free to change without hesitation, when new ideas point to more efficient operations.

Each oil field has different developing and operating problems from most other fields. Hence the operators have planned more effective development and operation of many major pools by cooperative pool engineering committees or by a pool engineer, who will concentrate upon the development, production and corrective work of a particular pool. The picture of the entire pool is helpful to the operator with even one lease, since he must also consider gas-oil contact, possible gas cap spread, water-oil contact, water encroachment, efficient use of reservoir energy, gas-oil ratios, bottom-hole pressures, type of proration suitable for pool, plug-back methods, and drilling, producing and casing methods.

All operators find that a pool engineer or committee gives more data for much less cost, than by duplication of engineering data assembly. There is also freer access to all necessary information when the pool engineer is gathering the data for the benefit of all operators. Undoubtedly the cooperative engineering work facilitates more complete collection and assimilation of important data on a pool-wide basis, thus causing better coordination of effort in promoting the welfare of the pool and in perfecting phases of its more efficient operation. After the drilling is completed in most pools, the lack of active scout operations makes it more difficult to obtain the knowledge of change in well status, pressure decline, plug-back, water increase, gas increase, etc. Experience has indicated that the pool engineer should gather data on gas, oil and water production, completion methods and total depth of wells. He should also take bottom-hole pressures, investigate proper proration plan for the pool, study water encroachment, and be able to recommend casing points and methods for corrective work on gas or water problems.

While many oil pools now have cooperative engineering committees or pool engineers, mention of several important pools will show the progress made by the industry in cooperative study of the various problems for more efficient development and operation.

The Yates pool, West Texas, with 802 producing wells, represents the progressive development of cooperative action. The pipeline outlets in 1927 forced voluntary proration under an umpire with allocation based on acreage and potential. When bottom-hole pressures were used to modify potentials, an engineer was employed by the umpire's office. Later, the state took over allocation of oil, and the umpire was discontinued, but engineering work was maintained from March 1930. The valuable contributions to knowledge of proper conservation principles made by this pool in its work toward conservation of gas, prolonging flowing life with lower lifting costs, and control of available gas and water energy to assist in maintaining and equalizing pressure are well known. The pool engineer issues reports on oil, gas and water production, bottom-hole pressures, correlation of oil-producing strata for remedial work on local water problems, and general research on improved methods.

Lea County, New Mexico, with 2646 wells, had cooperative engineering work started in July 1930, when voluntary proration was required in the Hobbs Pools to assure pipe-line connections to all and a proper proration plan. The allocation was based on 40-acre units with a potential factor. The voluntary agreements were effective upon approval by the state geologist and other state authorities and were supervised by an engineer, who acted as an umpire. Bottom-hole pressure and gas-oil ratio factors were used to some extent in allocation. The engineer prepared monthly production schedules, allocation of connections, and supervised potential tests, bottom-hole pressures and gas-oil ratio tests. After the New Mexico Oil and Gas Conservation Commission was created in 1935, the state deputized the former umpire to continue his engineering and proration work, and the Hobbs Pool Engineering Committee changed its name to Lea County Engineering Committee and covered all fields in Lea County (now 23 fields). Monthly engineering meetings are held to discuss repair or operating problems. Proration schedules are prepared, and monthly reports are issued on gas, oil and water production. Bottom-hole pressures are taken by per-

sonnel of the engineer's office, and are used in the allocation plans in the Hobbs and Monument fiields. Operators are advised on progress of corrective work on various wells The excellent assembly of engineering data keeps all operators in touch with the various factors in the many oil pools of Lea County at a very low cost per well, and provides a common ground for solution of mutual problems.

The East Texas oil field, with about 26,000 wells, has a field engineer and various reports on bottom-hole pressure, water conditions, core analysis, plug-back and corrective work are issued. It is an ideal example of the benefits that can be procured through pool committees in large fields without all operators joining in a cooperative program. Much of the work for bottom-hole pressures and other data is done by company engineers, but is assembled and analyzed by the field engineer. The effective handling of this great field and its proper producing rate has been based on engineering data of pressures and water encroachment, and has paid large dividends in longer flowing oil production at lower lifting costs and greater ultimate oil recovery. The Texas Railroad Commission, early in the life of the field, made its own bottom-hole pressure surveys, and did excellent work in keeping the total pool allowable within the proper limits to avoid undue pressure decline. There are many future engineering problems such as water disposal, salvaging remaining oil production on edge leases with their heavy water production, and extent of future control of reservoir pressure decline. East Texas has been a good example of efficient control of oil production by engineering data, and how the picture of the entire field must be studied.

The Conroe field, with 937 producing wells, has an engineer and engineering committee. Various reports are issued on oil, gas and water production, bottom-hole pressures, water encroachment, corrective work on water and gas, and operating methods. There is good cooperation between the operating companies. Bottom-hole pressure decline of three pounds per year shows excellent control of reservoir energy.

West Texas

The Penwell (Judkins) pool, West Texas, with 175 wells, has had a voluntary engineering committee composed of operators who take bottom-hole pressures, and spend their own time and money in assembling and issuing to all operators data on oil and gas production, bottom-hole pressures and water encroachment. This information has been valuable to all operators.

The Goldsmith pool, West Texas, with 951 wells, started cooperative engineering in March 1937. The principal effort of the pool engineers has been to promote better well completions and production practices, give advice on casing points, completion depths and corrective work to retard gas production and control water encroachment. Reports are issued giving engineering data on gas, water and oil production, corrective work, bottom-hole pressures, etc. The overall picture of pool operations seems to have improved during the period of engineering cooperation, since the statistics show that in 1936, 69 wells in the field had an average gas-oil ratio of 56-38 cubic feet, whereas at the end of 1940, 900 wells had a ratio of 1518 cubic feet per barrel.

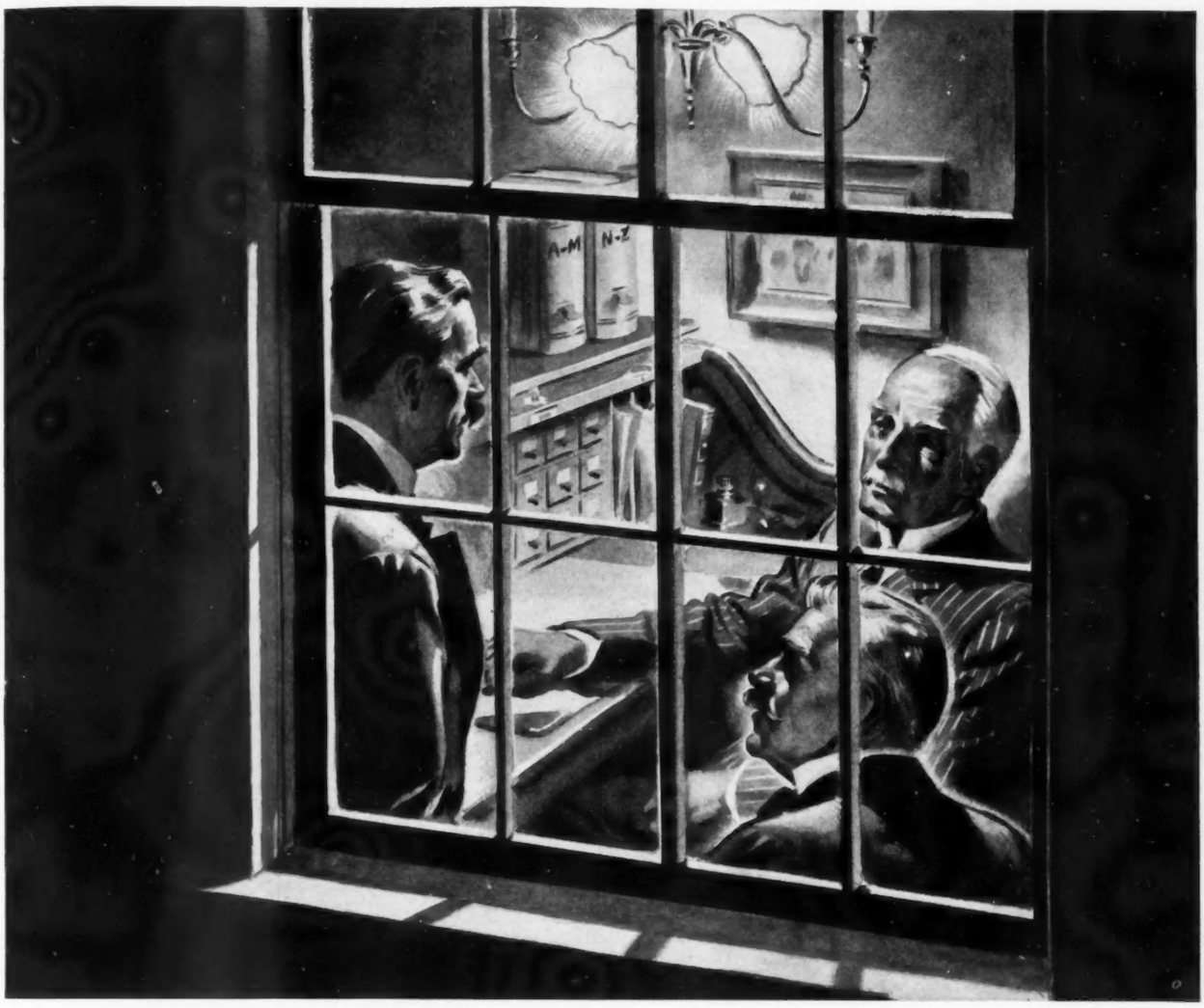
The North Basin pools, Wasson, Slaughter and Seminole in West Texas, comprising 127,000 acres and 1700 oil wells, started cooperative engineering work on March 1, 1939. The committee gathers data on gas, oil and water production, bottom-hole pressures, potentials, well completion records, pay penetration, and corrective work. Problems caused by the merging of the two pools, Wasson and Bennett, with different field rules and development, were worked out, and potential tests were placed upon a more equitable basis under such rules. Progress is being made toward study of further pool problems.

The KMA field, North Texas, comprising 1511 wells owned by over 100 different firms, under a pool engineer, represents one of the first efforts to attempt gas input, approaching pressure maintenance, on a cooperative basis. Fortunately, there was originally no gas cap condition, which would affect correlative rights. The engineer approves the selection of an input well, and cost of gas and laying of high-pressure lines is shared by the lease neighbors covering specified areas. Over $3,000,000 have been invested in gasoline plant and lines, and 100 input wells are in operation. The plan was approved by 90 percent of the operators. The conservation of the small amount of formation gas by restoring it to the formation should increase the ultimate oil recovery. The many problems of proper distribution of gas, and control of increased oil recovery between leases, correction of local gas cap conditions, and constant study of pool conditions, will present many difficulties to be solved by the pool engineer and cooperative effort. The KMA operators present a good example of the sincere efforts of oil operators today to make all reasonable efforts toward cooperative operation.

The North (Old) Burbank pool, Oklahoma, with 1924 wells, represents cooperative effort in an old, semi-depleted oil pool. A pool engineer and engineering committee, established in January 1939, issue monthly reports on oil and gas production, number of input wells, injection volumes and repressuring results. Considerable progress has been made in securing transfer of available surplus gas from the South Burbank pool, an increase in number of injection wells from 150 in 1939 to 260 in 1941, an increase in daily gas input volume from 13,789,000 cubic feet to 25,775,000 cubic feet, and elimination of vacuum from the pool. The results are shown in an increase in daily oil production from 6886 barrels daily in January 1940, to 9240 barrels daily in July 1941, which is now back to production levels of seven or eight years ago. The difficulties in distribution of available gas between operators at fair boosting and transportation charges have been worked out, and considerable credit is due the engineering committee for the many accomplishments in this pool.

The Naval Reserve pool, Oklahoma, with 256 walls, established a pool engineer in November 1937. The pool is returning most of produced gas to the formation. The engineer's principal work was to issue oil and gas production reports, operate and maintain a community gas system, distribute available gas for repressuring, apportion costs of said gas, and study effects of repressuring. The field has given good results on gas injection, and the various operators are kept fully informed of results in the entire pool at a very small cost.

The Oklahoma City pool established a pool engineer's committee in March 1939 to assemble data on



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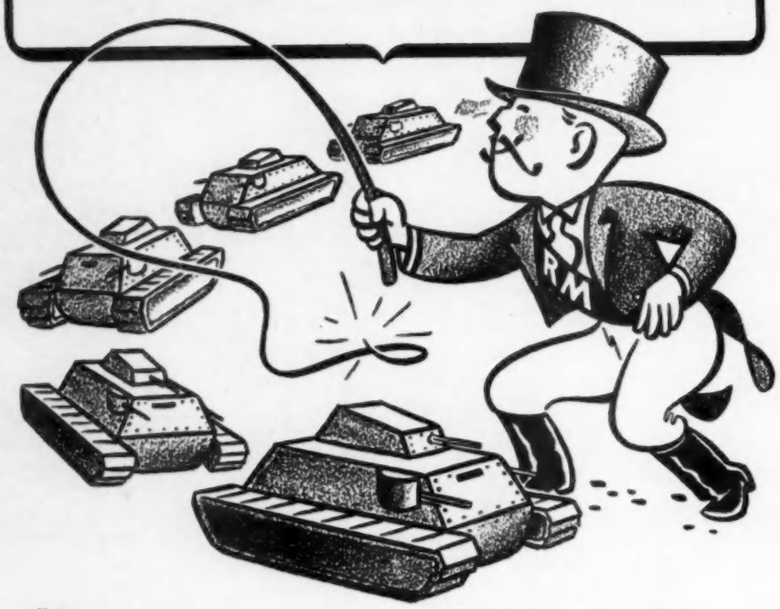

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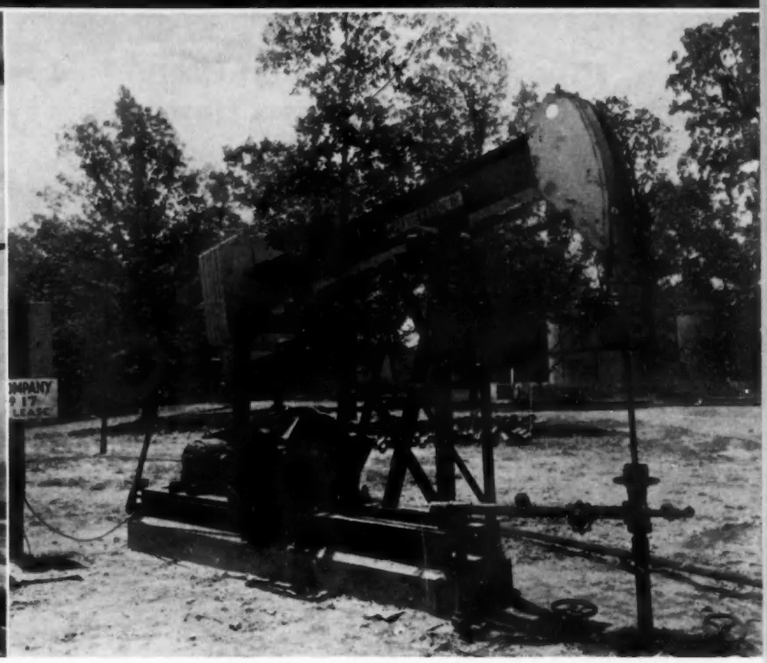
past oil, gas and water production from the Wilcox sand with 524 wells; estimate future oil recovery by present methods of production; carry out engineering and laboratory studies as to possibilities of secondary recovery, and to work out possible plans for equity in unitization. Interesting facts were developed such as poor remaining saturation in upper part of sand, and tests apparently indicating that the Wilcox sand would not respond to water flushing. Arrangements leading toward further tests by gas injection have been delayed by legal complications involving many small tracts and thousands of royalty owners. The exact cost for secondary oil recovery per barrel cannot be accurately predicted, and naturally some valid differences of opinion exist. This pool presents an effort by oil operators to investigate the salvage of additional oil, if possible, at a profit, and the work is continuing.

The Billings, Oklahoma, oil field operated under a pool engineer for a period, and largely through such cooperative efforts, results were obtained which caused unitization of the pool.

Many other fields such as Van, League City, and Greta, in Texas, and Lance Creek in Wyoming have operated under cooperative engineering either for a period of time, or to solve specific engineering problems.

The results of many pool engineering committees clearly show the value of cooperative work. The data assembled on gas, oil and water production, as well as other information on operations and corrective work are an invaluable guide to the individual operator. Proper cooperation by each producer works not only to his own benefit but also to the benefit of the pool as a whole. It is a movement which is gaining ground as well it should, because it reflects the good American spirit of self help through mutual cooperation. The returns in greater ultimate oil recovery at lower cost in pools comprising 37,000 wells through more effective control of the reservoir energy from gas and water, along with proper consideration to the correlative rights of the developed oil and gas leases have marked another advance in production technique and a milestone in industrial cooperation.

IF DEMAND CALLS FOR MAXIMUM PRODUCTION THESE ILLINOIS BASIN WELLS ARE PREPARED



The availability of oil was never more important than now, and the ability of wells to produce unfailingly is one true test of oil industry preparedness. These Illinois Basin pumpers are good examples of thousands of wells that went on an emergency basis when they went on the pump. The units with which they are equipped are the result of the remarkable combination of quality materials, assembled to specifications of fine engineering design, by skilled workmanship. They'll produce right around the clock, day in and day out, with a minimum of down-time, care, and maintenance cost. They'll produce all the oil the wells will yield. For the life of the lease they'll continue to give the kind of service which the oil industry has found in Parkersburg products for 44 years.

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Practical Operating Hints for

1. TOOL RACK

Pipe and Sheet Steel Employed for Rack Set Up on Unused Section of Derrick Floor

This rack, made from pipe and sheet steel, provides a convenient place for tools.

ONE operator uses a sturdy tool rack, portable and easily moved about on the derrick floor for convenience, constructed of 2-inch pipe with steel plates used as shelves. The base is made of a rectangular frame of 2-inch pipe, 2 x 6 feet in dimensions, while uprights of the same pipe size pyramid to the top and are connected by a single 6-foot rail. About midway from the base to the top is another rectangular frame, 1 x 6 feet.

Welded on the top of the two bracing frames are flat steel plates, forming suitable shelves for holding tools. The top horizontal pipe furnishes a satisfactory device for hanging wrenches and similar implements, and additional racking is obtained by the use of several steel fingers made of sucker-rod material, protruding horizontally from both sides of the middle frame about 8 inches long.

The pyramid shape of the rack allows it to set substantially on its base, and its balance permits support of a heavy load of tools. Although strongly built to stand heavy punishment, the rack is made of material light enough in weight to facilitate moving it about on the floor.

2. RIGGING UP

Tee in Mud Stand Pipe Eliminates Shut-Down

Extra tee in stand pipe permits use of normal mud hook up in well cementing.

INSTALLATION of an extra tee in the stand pipe just above the valve used to cut off the mud stream when the kelly is disconnected from the string permits the normal mud hook-up to be used for cementing without requiring shut-down or dismantling of any mud connections when cement is pumped down the hole.

The side outlet of the tee carries a swage nipple, collar and bull plug, or may be fitted with a gate valve. The side outlet serves as connection for the high-pressure cement line, enabling the cementing crew to make on quickly and follow the mud into the hole without delay or loss of pressure.

By closing the cementing valve when the desired quantity has been pumped into the hole, resumption of normal mud flow for carrying the cement to place may be had simply by reopening the standpipe valve. Mud flow through the stand pipe, hose and swivel quickly removes any traces of cement which might tend to harden there, insuring a clean channel for mud with resumption of drilling.

If a bull plug be used to seal the side opening under drilling conditions, a brief shutdown is required to install the necessary gate valve before tying in the cement line, but removal of this fitting may be postponed until the mud pressure is off the pipe for some other reason.—*E. C. Overturf, New Harmony, Ind.*

3. TOOL CARE

Steel Chest Guards Against Theft

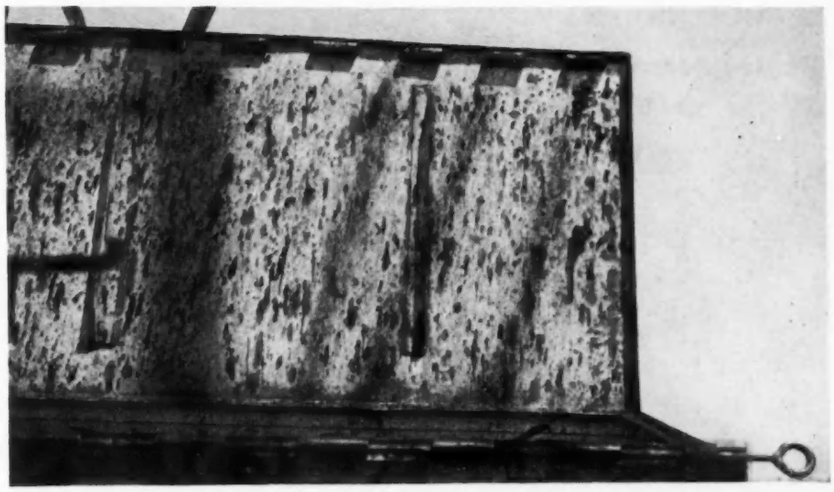
ONE of the common sources of grief for the operator or drilling contractor is the seemingly endless succession of lost or stolen hand tools and small fittings at each

THE practical operating hints for the drilling rig and production man, appearing in these features each week, are secured from oil fields everywhere and offer suggestions that will help to improve field efficiency and safety. The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, THE OIL WEEKLY, Houston."

location. A contractor operating in a Western Kansas field has solved the problem to a great extent by building a large tamper-proof, skid-mounted sheet-steel tool box eight feet long, 3½ feet wide and three feet deep.

To prevent forcing open the box when it is locked, the company welder cut a length of ¾-inch pipe into 4-inch sections and welded them at alternate 4-inch intervals to the front edge of the hinged lid, and at opposite intervals on the same edge of the lower or box section. A ⅝-inch section of sucker rod is run through these sections of pipe when the box is closed. Through the opposite end of the rod, a hole was drilled to accommodate a heavy padlock, making it impossible to withdraw the rod and raise the lid.

The extra work and cost involved in constructing the box has been more than repaid, since at times when only daylight tours are worked, such as while the well is standing cemented, all tools are thrown in the box and securely locked.



This box for tools and fittings has a lock system that cannot readily be forced.

4. SAFETY

Soft Rope Eliminates Skidding Danger

BY UTILIZING odd lengths of soft rope, one company makes working conditions much safer around their drilling rigs.

On the outer edge of the inclined ramp leading from the pipe rack to the derrick floor, rope is nailed in zig-zag fashion to the floor to provide more dependable footing for the man who is guiding or holding a length of pipe or tool as it is being pulled up to the floor. Better footing likewise is assured for members of the crew when mud or oil covers the entire floor and ramp.

Edges of stairways, plank walkways and other places around the rotary table or drawworks likewise can be made skid-proof and safer by the use of rope.

Soft rope nailed to edge of this ramp provides firmer footing for the worker.

5. EQUIPMENT CARE

Kelly, Drill Collars Held in Derrick

THE greatly increased hazards brought about by 10,000- to 13,000-foot drilling programs are well known. Costly fishing and side-tracking jobs have been to a great extent minimized by one operator by providing a means of protecting the most important elements of the drill pipe string, the kelly and drill collars, as they are removed from the hole.

Several 50-foot stands of casing —8-inch to 10-inch, depending upon the size drill pipe being used —are tied up in a far corner of the derrick. When coming out of the hole, the kelly is first broken off, and is inserted into one of the lengths of casing. The several joints of drill-collar are likewise broken down and placed in the other casing sections.

Little extra work and time is involved in providing for this extra care and protection, and the danger of accidentally acquiring a slight bend or kink or of getting the threads fouled with dirt or other foreign matter is definitely minimized.

Stands of casing fastened in derrick accommodate kelly and drill collars.

Practical Operating Hints for

1. GOOD HOUSEKEEPING

Panel Minimizes Use of Lease Maps by Easing Identificating at the Lease Entrance

This convenient panel facilitates well location, minimizing use of a lease map.

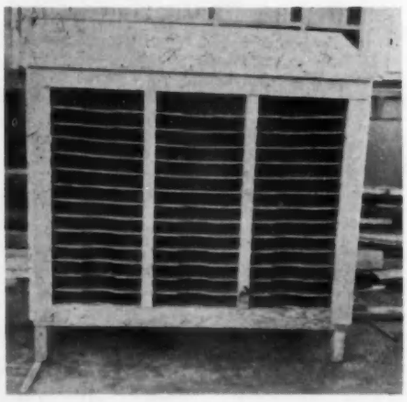
READY identification of any given well in a wide-flung West Texas lease is provided by means of an ingenious locating panel set up at the entrance to the lease.

Numbers corresponding to the well in each string of derricks are carried on the panel, enabling contact to be made with any desired well without recourse to lease maps. The numbers are painted on both sides of circular coupons, cut from light tank plate and joined with narrow bands to form vertical rows corresponding with the ranks of derricks in the field.

As each well is completed in the predetermined drilling plan, its number is placed on the proper coupon, and identification assured. Use of such panels on large leases permits officials from the more distant offices of the company to find their way around the lease without loss of time or extra travel. It also aids in reducing lost time while a clean-up or servicing gang covers designated locations.

2. RECORDING

Cabinet Holds Charts From Meters



Charts from a number of recording meters can be kept in this cabinet.

WHERE charts from a number of recording meters must be kept in a central location, access to any set is facilitated by use of a cabinet that provides for segregation of the records as received, and permits withdrawal of any number without interfering with the others. Such a cabinet may be built of plywood, with the shelves inclined slightly toward the back to prevent the records from being whisked out by a breeze, and with the depth slightly more than the diameter of the record.

To permit ready access to any set, shelves are cut away slightly in the center, so that from half to as much as an inch of the chart will overlap the gap and afford a good grip on the charts.

Identification of the charts may be secured through numbered markers set into the vertical divisions of the storage space, or by pasting labels opposite each section to show the desired identification data.

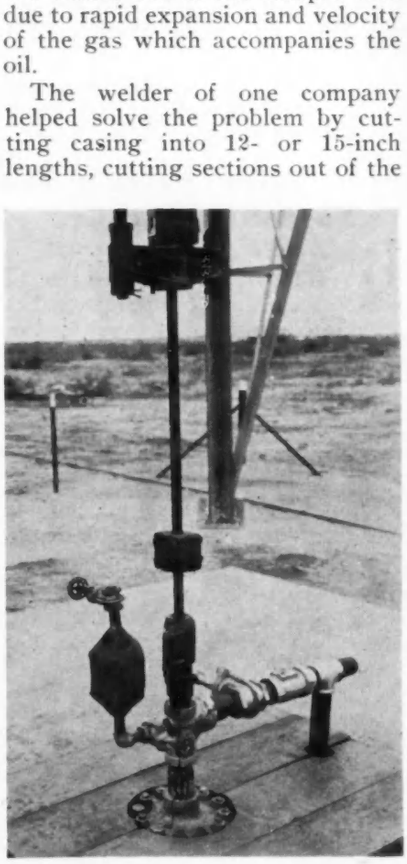
The top of the cabinet is made flat, to provide a handy place for chart comparison, planimetering or obtaining data from the chart by tracing or copying.

3. SAMPLING

Surge Chamber for Gas Expansion

ONE OF the common difficulties experienced by the pumper while taking lead-line samples on pumping or flowing wells is the violence with which the fluid often comes out of the sample cock due to rapid expansion and velocity of the gas which accompanies the oil.

The welder of one company helped solve the problem by cutting casing into 12- or 15-inch lengths, cutting sections out of the



An enlarged chamber permits gas expansion, simplifying sample taking.

THE PRODUCTION MAN . . .

Lighting plant is mounted on a two-wheeled trailer for emergency service.

ends to swedge them down to approximately a one-inch opening, and welding short pipe nipples to each end.

The enlarged chamber is fitted up and installed on the tubing tee, with a gate on either end of the container so that the fluid entering and leaving can be controlled while the sample is being taken. Fluid entering the chamber is allowed to expand, and the separated gas has a chance to escape before the fluid runs out into the sample can. The elbow between the lower gate and the chamber is not made up as tight as the other fittings, so that the assembly may be turned to an upward position when not in use.

4. LIGHTING

Emergency Unit Built On 2-Wheel Trailer

MOUNTED on a two-wheeled trailer built up by the company welder on an automobile front axle, a 6-kilowatt lighting plant, powered by a gasoline engine, provides adequate lighting for well servicing or emergency night repairs on pipe lines.

A steel box, provided with weather-tight cover, is attached to the bed of the trailer and serves as storage space for a wiring harness which needs only to be strung up in a derrick, over an A-frame, or supported on emergency poles to provide wide distribution of light around the job.

Equipped with link for attaching to a pin on the rear bolster of the service truck, the lighting trailer may be rushed to the job at the same time and by the same motive power which moves the repair crew, eliminating an extra car or truck.

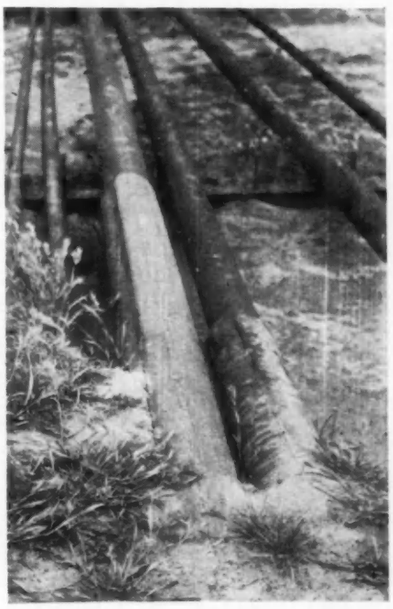
The trailer is light enough to be wheeled into place around the well by one or two men, a block under the front end maintaining the unit level during operation.

5. FENCING

Turnbuckles Aid to Keep Fence Taut

PROPER maintenance of a strong fence around a well location is very important in areas where range cattle might have access to well fittings or equipment. To save in the original installation, as well as subsequent tightening and repairing of wire strands, one company makes it a practice to use small turnbuckles on each strand that surrounds the location.

When gate standards are set up and braced, equally spaced holes are torch-cut out of the side of the pipe, which serve as anchors for the hook ends of the turnbuckles. The slight extra cost of the turnbuckles is more than offset by the time saved in the installation work, and the wire strands can be easily tightened up by any field man without use of special tools.



Casing is used for culverts to protect these lease gathering lines.

Turnbuckles on strands of this fence make it easy to keep strands taut.

6. PIPING

Casing Employed for Road Culverts

ON leases where much of the gathering system is laid out along the ground surface, and where drainage is not a serious problem, one company utilizes casing in constructing culverts for road crossings over the gathering lines.

Casing an inch or two larger in diameter than that of the gathering line, and several feet longer than the width of the road bed, is cut in half longitudinally with a torch. The two halves are placed around the gathering line, and then tack-welded together at several places along the length of the culvert.

Aside from the saving in the original cost of the material used, this type of culvert has the advantage of being easily salvaged, should the gathering system at any time be removed. The tack-welded spots can easily be split or cut apart, after which the two halves may be used on other installations.

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Completions Above 100 Daily First Time Since 1937

FOR the first time since October, 1937, United States well completions exceeded 100 a day in August of this year, as drilling expanded a little over the high rate of July and traced a curve nearly 20 percent above the trend of a year ago.

For the first 8 months of this year, completions were only 1.8 percent short of those in the corresponding months last year, as heavy drilling in recent months has narrowed the margin between the curves for the two years. (This percentage figure takes into consideration the fact that accompanying figures for 1941 cover 34 statistical weeks, while those for 1940 embraced 35 weeks.)

In four weeks in August, 2822 oil wells, gas wells, and dry holes were completed, an average of 100.8 completions daily, compared with 99.0 a day in July, 1941, and 84.0 daily in August of last year.

Continued exceptionally heavy drilling is in prospect for September, as rigs in operation (drilling, rigging up, or temporarily shut down) totaled 4984 on September 1, against 4819 on August 1, 1941, and 4194 on September 1, 1940.

STATE OR DISTRICT	TOTAL RIGS IN OPERATION (Drilling, Rigs Up, Shutdown)				DETAILS OF SEPTEMBER 1, 1941 FIELD ACTIVITY					
					Rigs in Operation			Prelim. Activity		
	Year Ago Sept. 1, 1940	Month Ago Aug. 1, 1941	Now Sept. 1, 1941	Percent Change From Year Ago	Drilling	Rigs Up	Shut Down	Derricks	Locations	Total Operations
Alabama	9	5	6	— 33.3	4	....	2	2	....	8
Arizona	7	5	5	— 28.5	....	....	5	....	....	5
Arkansas	23	32	34	+ 47.8	20	5	9	5	2	41
California	278	272	264	— 5.2	178	54	32	....	100	364
Colorado	30	29	33	+ 10.0	8	2	23	....	....	33
Florida	3	2	3	.....	1	....	2	....	....	3
Georgia	....	1	1	.....	....	....	1	....	....	1
Illinois	485	359	451	— 6.6	357	57	37	....	70	521
Indiana	89	72	69	— 22.5	60	4	5	....	17	86
Iowa	3	3	....	.....	....	....	....	....	....	....
Kansas	258	292	302	+ 17.0	261	36	5	18	19	339
Kentucky	62	32	47	— 24.2	40	4	3	....	1	48
Louisiana	171	214	251	+ 46.7	209	21	21	38	84	373
North Louisiana	44	82	103	+134.1	75	12	16	23	4	130
South Louisiana	127	132	148	+ 12.6	134	9	5	15	80	243
Michigan	131	160	130	— 0.8	83	27	20	27	64	221
Mississippi	34	38	41	+ 20.6	31	4	6	7	4	52
Missouri	19	13	9	— 52.6	1	....	8	....	....	9
Montana	47	71	79	+ 68.1	36	6	37	....	2	81
Nebraska	24	34	32	+ 33.3	22	....	10	1	3	36
New Mexico	121	117	118	— 2.5	78	5	35	2	18	138
New York	62	120	110	+ 77.4	72	30	8	6	16	132
North Dakota	....	5	....	.....	....	....	5	....	....	5
Ohio	347	284	299	— 13.8	217	30	52	19	49	367
Oklahoma	290	391	423	+ 45.8	356	34	33	24	36	483
Oregon	1	....	1	.....	....	....	1	....	....	1
Pennsylvania	358	501	498	+ 39.1	362	48	88	33	86	617
South Dakota	1	....	1	.....	1	....	....	....	....	1
Tennessee	9	6	6	— 33.3	5	....	1	....	1	7
Texas	1,058	1,421	1,399	+ 32.2	1,124	74	201	73	815	2,287
East Texas Field	10	23	24	+140.0	16	2	6	4	2	30
East Texas Border Co.'s	13	16	15	+ 15.4	10	2	3	1	....	16
Rest of East Texas	39	62	74	+ 89.7	51	5	18	4	5	83
North Texas	163	188	174	+ 6.7	130	6	38	9	208	391
South Texas	281	329	340	+ 20.9	277	23	40	26	227	593
Corpus Christi Area	151	176	182	+ 20.5	157	15	10	12	90	284
Laredo Area	76	99	98	+ 28.9	80	5	13	10	82	190
San Antonio Area	54	54	60	+ 11.1	40	3	17	4	55	119
Texas Gulf Coast	124	143	145	+ 16.9	117	13	15	16	112	273
Texas Panhandle	80	138	143	+ 78.8	129	7	7	5	22	170
West Texas	246	429	383	+ 55.7	330	9	44	8	221	612
West Central Texas	102	93	101	— 0.9	64	7	30	....	18	119
Utah	6	....	5	— 16.7	4	....	1	....	....	5
Washington	....	....	....	.....	....	....	....	....	....	....
West Virginia	202	269	289	+ 43.1	208	30	51	19	48	356
Wyoming	66	76	73	+ 10.6	40	1	32	....	2	75
Total United States	4,194	4,819	4,984	+ 18.8	3,778	472	734	274	1,437	6,695

STATE OR DISTRICT	MONTHLY COMPLETIONS							CUMULATIVE COMPLETIONS—First 8 Months							
	Total			Details for August, 1941				Total			Details for 8 Months of 1941				
	Year Ago (Aug., 1940)[2]	Month Ago (July, 1941)[3]	Latest Data (Aug., 1941)[1]	New Wells Drilled for Oil and Gas			Miscellaneous	Initial Oil Production	1940[4]	1941[5]	Percent Change in Weekly Average	New Wells Drilled for Oil and Gas			Miscellaneous	Initial Oil Production
				Oil	Gas	Dry						Oil	Gas	Dry		
Alabama	1	....	....	....	....	....	....	.....	4	1	— 73.9	....	....	1	....	.....
Arkansas	18	13	16	7	....	9	....	1,648	125	109	— 10.2	62	....	47	....	12,710
California[6]	81	104	101	89	1	11	....	55,750	732	738	+ 3.8	604	11	123	....	446,855
Colorado	1	2	1	1	....	....	....	200	5	10	+ 105.6	5	1	4	....	705
Flordia	....	....	....	....	....	....	....	.....	1	....	.....	....	....	....	....	.....
Georgia	....	....	....	....	....	....	....	.....	....	1	.....	....	....	1	....	.....
Illinois	412	348	375	271	2	95	7	71,339	2,684	2,381	— 8.7	1,773	9	566	33	359,521
Indiana	80	50	51	28	6	17	....	3,337	304	350	+ 18.5	188	29	131	2	25,352
Iowa	....	....	3	....	....	3	....	.....	....	5	.....	....	....	5	....	.....
Kansas	212	200	195	131	5	59	....	147,429	1,330	1,438	+ 11.3	1,015	41	371	11	1,307,859
Kentucky	47	25	25	8	1	16	....	632	224	196	— 9.9	78	3	112	3	4,097
Louisiana	151	133	111	73	12	26	....	13,683	1,131	914	— 16.8	603	53	258	....	121,508
North Louisiana	61	56	53	34	11	8	....	4,000	400	352	— 9.4	216	42	94	....	23,156
South Louisiana	90	77	58	39	1	18	....	9,683	731	562	— 20.8	387	11	164	....	98,352
Michigan	101	70	60	29	8	23	....	24,391	835	517	— 32.1	214	38	265	....	73,329
Mississippi	19	16	15	10	....	5	....	8,231	133	117	— 9.4	90	2	25	....	60,010
Missouri	7	1	3	....	1	2	....	.....	56	36	— 33.8	3	7	26	....	9
Montana	14	11	20	15	3	2	....	2,066	118	129	+ 12.5	81	31	17	....	12,924
Nebraska	7	4	11	8	....	3	....	3,177	8	56	+ 622.3	25	....	31	....	9,637
New Mexico	52	32	35	20	1	14	....	4,482	470	235	— 48.5	174	10	51	....	40,964
New York	89	106	85	58	....	....	27	470	703	582	— 14.8	383	2	1	196	2,627
Ohio	136	140	134	23	67	35	9	1,187	624	1,061	+ 75.0	237	456	277	91	5,576
Oklahoma	193	175	194	115	11	65	3	32,752	1,460	1,384	— 2.4	840	108	412	24	258,931
Pennsylvania[7]	341	366	402	189	30	7	176	295	2,598	2,681	— 0.2	1,192	237	81	1,171	1,601
South Dakota	....	....	....	....	....	....	....	.....	1	....	.....	....	....	....	....	.....
Tennessee	2	....	....	....	....	....	....	.....	19	7	— 62.1	....	....	7	....	.....
Texas	900	909	915	691	22	201	1	345,968	6,963	6,569	— 2.9	4,838	154	1,563	14	2,754,678
East Texas Field	27	43	39	35	....	3	1	50,320	192	399	+ 113.9	384	....	11	4	726,250
East Texas Border	2	3	2	....	....	2	....	.....	11	18	+ 68.5	3	8	7	....	339
Rest of East Texas	24	36	36	24	4	8	....	7,203	165	326	+ 103.4	200	25	98	3	74,027
North Texas	182	231	228	152	2	74	....	55,026	1,484	1,602	+ 11.1	1,020	6	570	6	324,692
South Texas	244	215	186	126	10	50	....	44,034	1,840	1,505	— 15.8	1,003	57	445	....	370,790
Corpus Christi	122	105	103	83	3	17	....	32,673	894	795	— 8.4	611	20	164	....	292,946
Laredo	101	78	61	34	7	20	....	10,795	765	537	— 27.7	296	35	206	....	67,679
San Antonio	21	32	22	9	....	13	....	566	181	173	— 16.1	96	2	75	....	10,165
Texas Gulf Coast	100	67	68	49	....	19	....	11,325	880	506	— 40.8	382	17	107	....	93,387
Texas Panhandle	75	54	73	71	1	1	....	16,657	458	403	— 9.4	372	15	16	....	78,703
West Texas	171	203	225	205	1	19	....	158,586	1,415	1,413	+ 2.8	1,303	5	104	1	1,062,751
West Central Texas	75	57	58	29	4	25	....	2,817	518	397	— 21.1	171	21	205	....	23,739
Utah	....	1	....	....	....	....	....	.....	2	1	.....	....	1	....	....	.....
West Virginia	57	54	50	13	35	2	....	108	370	427	+ 18.8	62	298	67	....	535
Wyoming	17	12	20	16	1	3	....	3,789	101	88	— 10.3	72	5	11	....	31,410
Total United States	2,938	2,772	2,822	1,795	206	598	223	720,934	21,001	20,033	— 1.8	12,539	1,496	4,453	1,545	5,530,838

[1] Wells completed in 4 weeks, or 28 days, ended August 23, 1941. [2] Wells completed in 4 weeks, or 28 days, ended August 24, 1940. [3] Wells completed in 4 weeks, or 28 days, ended July, 26, 1941. [4] Wells completed in 35 weeks, or 245 days, ended August 24, 1940. [5] Wells completed in 34 weeks, or 238 days, ended August 23, 1941.
[6] California figures from the American Petroleum Institute except for August, 1941. [7] Bradford, Pennsylvania, figures from The Producers Monthly except for August, 1941.

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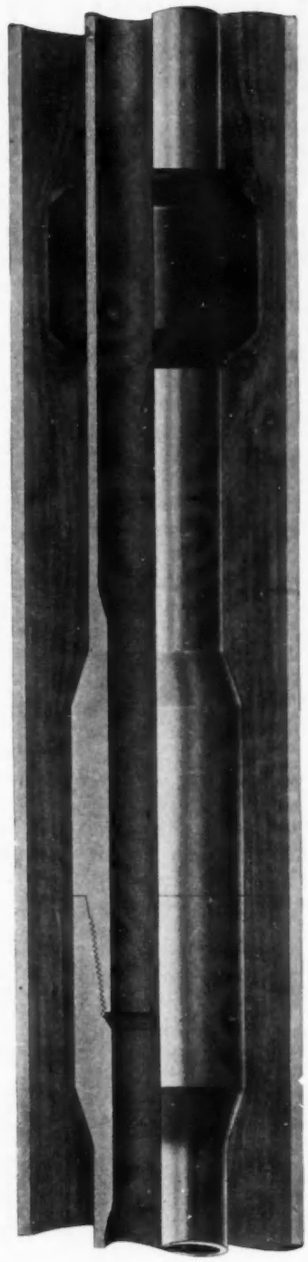

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HIGHLIGHTS IN THE WEEK'S NEWS

Injunction in McElroy Field Proration Case Is Delayed

At the request of the Court of Appeals, District Judge J. Harris Gardner of Austin has agreed not to sign a temporary injunctive order in the McElroy case until the appellate court hears the State's plea for a writ of prohibition September 8.

The temporary injunction announced last week would be granted to E. C. Marrs and other royalty owners and operators in the McElroy field, would restrain the Texas Railroad Commission from curtailing production in the Gulf-McElroy area below 35,000 barrels daily.

The September order allocated 19,988 barrels, subject to shutdowns.

A permanent injunction against the commission was granted by the same court on June 13, 1941. The state, however, superseded the trial court judgment by appealing. This action in effect put the plaintiffs in the position of being subject to the commission orders until final disposition of the case on appeal.

At the hearing last week for a temporary injunction, the petitioners requested that such order or orders entered by the court be "continued in force pending an appeal."

The state's plea in abatement for dismissal of the suit was overruled, the court holding that the orders issued by the commission after June 13, constitute new subject matter, and must be tried by the proper trial court to determine their validity or invalidity.

State attorneys maintained that the two McElroy suits are identical, and that institution of the second suit would work to deprive the state of its right to supersede the original trial court's judgment.

Hearing on the permanent injunction granted June 13, 1941, is now set for submission on appeal on November 12.

Commission Called Upon to Divide West Texas Fields

An unusual problem was presented to the Texas Railroad Commission at a hearing last week to fix a dividing line between the Kermit, Emperor Deep and Hendricks fields in Winkler County. The Hendricks field, an old area producing as much as 98 percent water from some wells, has allowables based on the volume of water produced. That is, the wells are permitted to produce in some cases about all the oil they can with the quantity of water lifted.

The Kermit and Emperior Deep fields, however, are relatively new, but recent drilling has brought these two fields up to the boundaries of Hendricks. As a result, some of the wells along the Hendricks boundary line are now producing large volumes of water, and the owners of these wells want to get the benefit of the water exemption.

At the hearing before the commission a plan was outlined by C. V. Lyman and George Bates by which an artificial line of demarcation would be established between the three fields. Several alternative plans were offered, but none of the plans proposed were based on the physical conditions of the field, other than the water production.

Thus, the commission will be required to determine without physical data, other than the condition of particular wells, the boundary line between three oil fields which late drilling has brought together. The situation has not been encountered before, and the final ruling is expected to establish a precedent for similar situations which may arise in the future.

Michigan Board Leaves Reed City Proration Rate Unchanged

Following hearing of operators, pipe line and refinery representatives, the Michigan Oil Advisory Board recommended leaving the present 480-barrel per day per well allowable unchanged for the Reed City, Osceola County, field.

P. J. Hoffmaster, state supervisor, said evidence presented at hearing showed that the current allowable is preventing physical waste. However, he said that present rates of development may create marketing waste within 30 days or less and he told operators that a revised order might be issued this month.

As of September 1 the field was producing 13,000 barrels per day under the 480-barrel allowable. Michigan markets, Hoffmaster said, are about 15,000 barrels per day for the field with out-state potential markets representing about 15,000 barrels per day. Hoffmaster said that the board had recommended a rule to require producing of all flowing wells through chokes and separators.

A proposal that the state set up rules governing the amount of acid used in treating wells was tabled.

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Mexican Expropriation Near Solution; U. S. Loan Involved

President Manuel Avila Camacho's speech at the opening of the Mexican congress last week, and subsequent reports from Washington, make it a practical certainty that the American and Mexican governments are on the verge of announcing a solution of the issue created by expropriation of foreign oil company properties in Mexico in 1938.

In his speech on September 1, Camacho confirmed earlier reports that the oil issue would soon be settled in a general agreement between the two governments. He declared, "Diplomatic negotiations for a general settlement on a just basis of various pending questions between the two countries are on the point of reaching a satisfactory result." He included the oil issue among these questions.

Following Camacho's address, Washington press dispatches declared the American government will make a large loan, perhaps between $50,000,000 and $100,000,000, to Mexico which will make possible a final cash settlement with American oil companies. Claims of British oil companies would not figure in such an arrangement. In Mexico City, Foreign Minister Padilla declared Mexico was about to renew discussions with Britain relative to restoration of diplomatic relations between the two countries. However, when asked whether restored relations presupposed a settlement of the British-Mexican oil issue he asserted the two matters are separate.

Increasing Volume of Illinois Oil Moving by River Barge

Each week more and more Illinois Basin crude oil is being transported by water. From the Evansville area, from shipping terminals on the Ohio River between Shawneetown, Illinois, to Owensboro, Kentucky, a daily average of 50,000 barrels of oil is moving by barge to refining points near Louisville and Pittsburgh. This total represents about seven barge loads per day.

The bulk of this total is shipped from the Sohio Corporation terminal at Mt. Vernon, Indiana, where a large part of southern Illinois crude goes by pipe line.

Purchasing companies cite several reasons for the increased river traffic, particularly the comparative costs. If direct pipe lines were available, for instance, it would cost about 17.5 cents to transport a barrel of crude oil from the Mt. Carmel field in Wabash County, Illinois, to Louisville, Kentucky, and about 45 cents to Pittsburgh.

With no direct lines available, however, purchasers in the Mt. Carmel field must turn either to rail transportation or a combination of pipe line and river barge.

By rail from Mt. Carmel to Louisville costs about 27 cents per barrel. But by taking this crude by pipe line from Mt. Carmel to Mt. Vernon, at a cost of about 10 cents per barrel, and from there up the Ohio by barge to

Louisville for another 10 cents, a saving of seven cents per barrel is realized. By rail from Mt. Carmel to Pittsburgh the transportation costs per barrel is around 66 cents; and by pipe line from Mt. Vernon and thence to Pittsburgh by barge the cost approximates 56 cents per barrel.

Contracts Let on Two Lines To Serve West Texas Areas

Contracts have been awarded for installation of two pipe line projects in West Texas, but work has been held up due to delay in pipe delivery. Texas-New Mexico Pipe Line Company accepted bid of J. E. Carlson & Son for the laying of its recently authorized gathering system in the Slaughter field, involving 17 miles of 6-inch and 16 miles of 4-inch. The system will operate largely by gravity in connection with the company's gravity trunk line to Midland, where oil will be delivered to The Atlantic Refining Company.

Gulf Refining Company awarded contract to J. R. Stewart for the laying of four loops, aggregating 26½ miles of 10-inch, on its trunk line between Midland and Ranger. The new units will provide an additional 5000 barrels capacity, making the total 65,000 barrels daily.

Texas Commission Hearings On Three Fields September 10

The Texas Railroad Commission has scheduled a hearing for September 10 to consider adoption of operating rules to govern the Harrold pool in Wilbarger County. On the same day the commission will hear evidence to determine whether or not special rules should be promulgated to govern the Spencer field in Ward County.

At a third hearing scheduled for September 10 the commission will consider the application of Gulf Plains Corporation and Sam E. Wilson, Jr., for authority to dual complete Union Central Life at Agua Dulce, Nueces County.

Aransas Pass Acreage Rule Changed by Texas Commission

Revision of the Texas Railroad Commissions rule governing non-contiguous units in the Aransas Pass field has established an unusual precedent. This field is one in which operators are permitted to pool non-contiguous tracts in drilling operations. That is, if a well is drilled on one five-acre unit, another five-acre unit not joined to the original tract may be joined for the purposes of allocation. Thus, without drilling a well on the second tract, the well on the first tract may have acreage credit therefor.

One problem arising from such practice is to determine whether all tracts joined are productive acreage. To assure that they are, in issuing the new rule, the commission said that a tract on which no well is drilled may not be more than 990 feet from the well at its most distant corner. Neither may the two tracts joined be more than 750 feet apart from boundary line to boundary line. A maximum of 10 acres may be assigned to one well. By this means the commission expected to prevent the inclusion of any area actually beyond the producing areas of the oil fields.

Oil Demand High

[*Continued from page 17*]

ships appear quite credible, and it remains to be seen if there is any basis for intimations that these additional transfers may reach 100 ships besides the 50 originally diverted. If the added transfers should reach 100, the East Coast would be short 536,000 barrels daily (34.5 percent) in the fourth quarter, equivalent to 134 tankers, it is indicated, and 476,000 barrels (30.6 percent) in the first quarter of next year, representing the services of 119 tankers.

From statements given out from the office of the petroleum coordinator, no worth-while conclusion may be reached as to what actually is in store in the matter of supplying the East Coast, as Coordinator Ickes in the past has talked of the necessity for a 33 percent curtailment of consumption, while Deputy Coordinator Davies lately has expressed the "hope" that only a 10 percent curtailment of use would be necessary between now and spring, and none thereafter. Apparently, that optimistic hope could be realized, however, only through greatly increased use of railroad tank cars, utilization of Axis-owned tankers that are held in the Western Hemisphere, and material reductions of East Coast inventories, which heretofore have been considered as being only a little in excess of necessary working stocks.

In supplying the East Coast without adequate transportation facilities, the industry has been concerned primarily with warding off shortages of gasoline and heating oil and so far has been remarkably successful. The East Coast stocks of gasoline on August 30 were within 1,515,000 barrels of those a year previously, with stocks at 20,261,000 barrels, while stocks of gas oil and distillate fuel were down 1,589,000 barrels from a year before at 15,266,000 barrels. In the meantime, however, it has not been possible to maintain stocks of residual fuel oil as well, and August 30 inventories of that product on the East Coast, having totaled 9,127,000 barrels, were 2,709,000 barrels smaller than a year previously. Apparently, some of the utility companies and other consumers of heavy fuel oils will find it necessary soon to switch from oil to coal for fuel. Stocks of the three principal products combined amounted to 44,654,000 barrels on August 30, or 5,813,000 less than a year before.

In spite of the trouble in supplying the East Coast, demand for petroleum so far has continued at unprecedented proportions. In its forecasts for September, the Bureau of Mines took into consideration the announced plans to curtail the distribution of gasoline in the East Coast district by 10 percent and calculated that the attainment of that objective in September would reduce estimated consumption in that area by about 2,000,000 barrels. But the bureau pointed out that the effect of the East Coast situation would be somewhat offset by increasing defense requirements and an anticipated increase in total exports.

The agency estimated that the nation's domestic demand for motor fuel in September would amount to 57,500,000 barrels, an increase of 10 percent over the actual demand in September, 1940, and that exports would total 2,700,000 barrels, against 1,907,000 last September, indicating a gain of 11.1 percent in total demand. Fulfillment of this forecast would constitute a continuation of the trend heretofore this year in domestic consumption and further improvement in the trend of export business.

On the basis of the estimated demand for gasoline, principal product of the industry, the bureau calculated that the daily average requirements for domestic crude oil in September would be 3,960,000 barrels. That would be 20,000 barrels more than the estimated daily average demand for August and 7 percent more than the actual demand for September of last year.

In regard to the national situation, the bureau stated that the supply of all oils seemed to be ample. The seasonal level of total gasoline stocks is fairly normal, according to the agency, but the heavy liquidation of crude stocks might well be offset by some increases in the near future. During the second quarter of 1941, national stocks of refinable domestic crude oil decreased by 7,000,000 barrels. The principal changes by states of origin were decreases for Oklahoma, California, and Illinois, while stocks of Texas origin increased. Preliminary figures for July were said to indicate a further liquidation of 7,000,000 barrels.

Eastern Stocks Increased But Less Than Normally

Latest statistics of the industry, covering the week ended August 30, reflected some improvement in supplying the East Coast, as compared with the previous week. Nevertheless, there was again a failure to replenish the Eastern oil inventories in normal volume.

Crude oil production again reached a new high, and refinery runs were within 20,000 barrels of the all-time peak that was established several weeks ago, as producers and refiners boosted operations closely in line with prevailing record-breaking demand.

In the week ended August 30, there was an aggregate addition of 873,000 barrels of gasoline, gas oil and distillate fuel, and residual fuel oil to East Coast storage, compared with an addition of 1,437,000 barrels in the correspoding week last year. As compared with the results a year ago, therefore, there was a lagging in the August 30 week of 564,000 barrels (80,000 daily) in the replenishing of the East Coast inventories.

By products, the changes in East Coast stocks were as follows:

Product	Change in Week Ended Aug. 31, 1940 (Barrels)	Change in Week Ended Aug. 30, 1941 (Barrels)
Gasoline	+303,000	+167,000
Gas Oil and Distillate Fuel	+888,000	+370,000
Residual Fuel Oil	+246,000	+336,000
Total 3 Products	+1,437,000	+873,000

These figures indicated relaitvely better results than in the previous week in maintaining stocks of the heavy fuel oils, as inventories were increased a little more than in the corresponding week last year. Meanwhile, gasoline and light fuel oil also were added to storage, but in considerably smaller volume than in the like week last year.

Nevertheless, the figures for the week were much more satisfactory than those of the previous week, when East Coast stocks showed changes as follows:

Product	Change in Week Ended Aug. 24, 1940 (Barrels)	Change in Week Ended Aug. 23, 1941 (Barrels)
Gasoline	—475,000	—699,000
Gas Oil and Distillate Fuel	+515,000	+458,000
Residual Fuel Oil	+546,000	—1,308,000
Total 3 Products	+586,000	—1,549,000

In that week, ended August 23, 1941, there was, as compared with the corresponding week last year, a lag of 2,135,000 barrels (305,000 daily) in the replenishing of the East Coast stocks of the three principal refined products.

For the past two weeks in the aggregate, therefore, there has been a deficiency of 192,500 barrels daily in the maintenance of East Coast inventories of the three products.

Figures on East Coast crude stocks are available only through the week ended August 23, 1941, and in that week there was a withdrawal of 461,000 barrels (66,000 daily), as compared with an average withdrawal of only 17,000 barrels daily in August of last year. This deficiency of 49,000 barrels daily in maintaining crude stocks on the same basis as last year, added to the above deficiency of 305,000 daily for the three major refined products, indicated a total deficiency for that week of 354,000 barrels daily.

East Coast refineries apparently have not been slowed down any, nevertheless, by inadequacy of crude. They stepped up operations to 95.7 percent of capacity (644,000 barrels of crude throughput daily) in the week ended August 30 from 91.4 percent (615,000 daily) the previous week.

For the country as a whole, crude runs to stills were at 94.7 percent of capacity in averaging 4,070,000 barrels daily, as compared with 92.6 percent (3,975,000 daily) the week before.

To keep plants supplied, producers turned out a new record volume of 4,004,700 barrels of crude daily, the first time that United States production has risen above the 4-mililon-barrel mark.

For the United States, gasoline stocks decreased from 82,566,000 to 81,672,000 barrels in the week ended August 30, and at the latter level were 2.8 percent or nearly 2,500,000 barrels under the 84,047,000 barrels held a year previously. East Coast stocks, at 20,261,000 barrels, were 1,515,000 barrels smaller than a year before.

Stocks of gas oil and distillate fuel in the United States were increased from 44,282,000 to 45,351,000 barrels, and the latter amount was 1.5 percent or about 675,000 barrels larger than that of 44,678,000 in storage a year previously. On the East Coast, stocks of the light fuel oils, at 15,266,000 barrels, were 1,589,000 barrels smaller than at the corresponding time last year.

United States stocks of residual fuel oil were increased from 94,308,000 to 95,052,000 barrels in the week of August 30, and the new total was 11.3 percent, or about 12,000,000 barrels smaller than that of a year before, although the decrease has occurred almost wholly in California. On the East Coast, the heavy fuel storage was increased from 8,791,000 to 9,127,000 barrels during the week, but the new total was 2,709,000 barrels smaller than that of a year previously.

Gasolines and Lubes Marked Higher in Strong Market

Wholesale prices of petroleum products continued to edge upward last week, following heavy draft on supplies during the Labor Day period; and crude-oil markets continued exceptionally strong, although the nearest approach to a raise in postings was the

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[3]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[2]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[5]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[5]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[1]48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 1	3,632,250	3,585,000	263,176,000	96,917,000	33,725,000	97,510,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 31	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 7	3,816,700	3,880,000	260,956,000	92,522,000	34,305,000	93,384,000
June 14	3,822,750	3,755,000	260,464,000	92,478,000	35,060,000	93,182,000
June 21	3,857,600	3,845,000	259,142,000	91,916,000	35,736,000	93,281,000
June 28	3,847,250	3,930,000	259,399,000	91,461,000	35,732,000	92,896,000
July 12	3,870,750	[1]4,090,000	255,567,000	89,561,000	37,812,000	92,699,000
August 2	3,695,250	3,845,000	252,535,000	86,779,000	41,433,000	94,800,000
August 9	3,911,950	3,835,000	251,945,000	86,022,000	42,136,000	95,412,000
August 16	3,953,300	3,920,000	251,013,000	83,777,000	43,558,000	94,752,000
August 23	3,975,450	3,975,000	248,910,000	82,566,000	44,282,000	94,308,000
August 30, 1941	[1]4,004,700	4,070,000	.....	81,672,000	45,351,000	95,052,000
August 30, 1940	3,501,350	[8]3,508,000	[4]263,802,000	84,047,000	44,678,000	107,155,000
Change in past year	+14.3%	+16.0%	—5.6%	—2.8%	+1.5%	—11.3%

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, August 24, 1940.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] August, 1940, daily average.

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Range Last Week (Cents a gal.)		Changes from Week Before	
Oklahoma Refineries:				
60 Octane and Under	5 ¼	5 ⅝	...	...
63-66 Octane	5 ⅝	6	...	...
72-74 Octane	6	6 ⅜	...	...
80-82 Octane, Ethyl	6 ¾	7 ⅛	+⅛	...
Mid-Western Tank Car:				
60 Octane and Under	5 ⅛	5 ⅝	...	...
63-66 Octane	5 ⅝	6	...	...
72-74 Octane	6	6 ⅜	...	...
80-82 Octane, Ethyl	7 ⅜	7 ⅜	...	...
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8 ½	...	...
Min. 80 Octane, '39 Research	8 ½	9	...	...
Gulf Coast:				
60 Octane unleaded	5 ½	5 ¾	...	+⅛
65 Octane unleaded	5 ⅝	6	...	+⅛
68 Octane unleaded	6 ¼	6 ½	+⅛	...
70 Octane unleaded	6 ¼	6 ⅝	+¼	...
72-74 Octane leaded	6	6 ¼	...	...
Min. 80 Octane, '39 Research	6 ¼	6 ½	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	4 ⅛	4 ¼	+⅛	+⅛
F.O.B Br'kenr'ge, Tex.	3 ⅞	4	+⅛	+⅛
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4 ⅜	4 ¾	...	...
42-44 water white	4 ½	4 ⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4 ⅜	4 ¾	...	...
42-44 water white	4 ½	4 ⅞	...	...
New York Harbor	5 ⅜	5 ¾	...	...
RANGE OIL				
At Oklahoma Refineries	4	4 ⅜	...	...
In Mid-Western Market Group 3, basis	4	4 ⅛	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3 ½	4 ⅛	...	...
No. 3	3 ⅜	3 ⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3 ⅞	4 ⅛	...	...
No. 3	3 ¼	3 ½	...	...
New York Harbor:				
No. 1	5 ⅜	5 ¾	...	...
No. 3	5 ¼	5 ⅛	...	...

HEAVY FUELS	Range Last Week (Per Bbl.)		Changes from Week Before	
Oklahoma Refineries:				
No. 6	$0.80	$0.85	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.87 ½	...	...
New York Harbor:				
No. 5	1.65	1.75	...	...
No. 6	1.35	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$0.85	$ .95	...	...
New York Harbor	1.35	1.50	...	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.55	$1.55	...	...
New York Harbor	2.15	2.15	...	...
Los Angeles Basin 27 gravity	1.05	1.15	...	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210° 10-25 pour test	20 ½	22	...	+½
Neutral oil pale No. 3 Color, 150 viscosity at 100°, 0-10 pour test	13 ¼	13 ½	+¾	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	25	28	...	...
Neutral Oil No. 3 Color, 150 viscosity at 70°, 25 pour test	31	35	...	...

intimation that the government might allow at least a part of the 25-cent increase in Pennsylvania-grade prices which it recently ordered rescinded. (Producers of that oil stormily protested the government action and are attempting to show the price control authorities that contemplated prices were justified.)

Among the products, both refined and natural gasolines were especially strong last week, and quotations were advanced ⅛ to ¼ cent a gallon on the refined materials of all grades on the Gulf Coast, as various refiners raised their asking prices. High-octane gasoline was marked up also by some Mid-Continent refiners. Natural gasoline was generally ⅛ cent a gallon higher in the Oklahoma and Breckenridge, Texas, markets.

Lubricants continued exceptionally scare, and quotations on both bright stocks and neutral oils were advanced ½ to ¾ cent a gallon by Mid-Continent refiners, although prices remained unchanged in the Western Pennsylvania refining district, under the ceilings imposed by the government.

Heavy fuel oils also were tight, and No. 5 grade was raised ¼ cent a gallon to 4 cents, or $1.68 a barrel, at Philadelphia and Baltimore, while scarcity of bunker oil was reported at New England points.

In the Middle West, remarkably large consumption of gasoline during the Labor Day holiday was reported, and most refiners and marketers indicated that heavy replacement buying was occurring immediately after that period,

Extra Shutdown Day in Texas Cuts Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable (Barrels Daily in Sept.)	BARRELS DAILY FOR WEEK ENDED Aug. 30	Sept. 6
TEXAS—				
Texas Panhandle	.....	.....	79,700	84,800
North Texas	.....	.....	100,500	100,700
West Central Texas	.....	.....	30,800	30,500
West Texas	.....	.....	275,100	225,400
East Central Texas	.....	.....	85,300	79,800
East Texas Field	.....	.....	369,700	299,200
South Texas	.....	.....	220,200	183,200
Texas Gulf Coast	.....	.....	290,400	250,650
Total Texas	1,378,600	1,357,000§	1,451,700	1,254,250
CALIFORNIA—				
Long Beach	.....	.....	39,800	39,100
Midway-Sunset	.....	.....	44,000	52,800
Kettleman Hills	.....	.....	38,400	38,700
Wilmington	.....	.....	84,600	85,100
Others	.....	.....	425,200	425,200
Total California	634,700	610,000*	632,000	640,900
OKLAHOMA—				
Oklahoma City	.....	.....	86,500	98,350
Seminole Area	.....	.....	113,300	112,100
Others	.....	.....	231,725	227,150
Total Oklahoma	489,800	428,000	431,525	437,600
ILLINOIS—				
Salem	.....	.....	79,200	79,300
Louden	.....	.....	61,000	61,100
Centralia	.....	.....	9,000	9,100
Other New Pools	.....	.....	226,900	242,000
Old Pools	.....	.....	10,500	11,400
Total Illinois	392,500	.....	386,600	402,900

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (Sept.)	State Allowable (Barrels Daily in Sept.)	BARRELS DAILY FOR WEEK ENDED Aug. 30	Sept. 6
LOUISIANA—				
North Louisiana	.....	.....	77,850	78,600
South Louisiana	.....	.....	254,100	254,850
Total Louisiana	324,000	328,646	331,950	333,450
KANSAS	239,800	248,800	254,300	229,400
NEW MEXICO	113,200	113,200	114,500	114,500
EASTERN STATES—				
Pennsylvania Grade	75,400	.....	73,600	75,000
Others, Eastern	24,400	.....	18,500	18,500
Total Eastern States	99,800	.....	92,100	93,500
MOUNTAIN STATES—				
Wyoming	85,000	.....	83,100	84,250
Montana	20,200	.....	20,300	20,250
Colorado	4,500	.....	3,850	3,800
Total Mountain States	109,700	.....	107,250	108,300
MICHIGAN	39,500	42,000†	42,150	45,150
INDIANA	21,400	.....	20,300	20,250
ARKANSAS	79,000	76,013	74,100	74,450
MISSISSIPPI	33,000	.....	47,800	49,200
NEBRASKA	5,000	.....	7,500	7,100
‡Total 8 Prorated States	3,298,600	3,203,659	3,332,225	3,129,700
Total United States	3,960,000	.....	3,993,775	3,810,950

* Recommendation of Conservation Committee of California Oil Producers.
† Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.
‡ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.
§ Calculated daily average of actual production at beginning of September, allowing for usual under production of 3½ percent below net allowable, which was figured as of September 1, at 1,406,362 barrels daily. However, allowable normally increases as new wells are completed, and actual daily average production for month is expected to conform with Bureau of Mines estimate of demand. Under September order, most Texas fields were ordered shut down September 1, 6, 7, 13, 14, 20, 21, 27, 28 and 30. Panhandle was ordered shut down September 7, 14, 21 and 28.

instead of the normal post-holiday slump in demand. Consequently, supplies were extremely scarce as the week proceeded.

In the Mid-Continent refining district, too, orders for gasoline were exceptionally heavy in the wake of the holiday, as marketers sought to replace depleted supplies. In the latter part of the week, some refiners reported that they were nearly a week behind in filling orders and that it was necessary for them to seek supplementary supplies from other plant owners, although most of the other refiners were in similar circumstances.

Encouragement was given throughout the industry by the continued lowering of railroad rates on tank car movements of crude oil and products from the Southwest to the East Coast and by the prospect that still lower rates might be inaugurated, which would result in large-scale rail movement to the Eastern consuming area and almost complete meeting of demand there, although the petroleum coordinator's office has ordered the holding of September deliveries of gasoline to Eastern motorists to 85 percent of July deliveries, with the object of achieving a 10 percent curtailment in over-all demand for the month.

Pacific Coast Fuel

Pacific Coast territory domestic demand for fuel oil increased 5,556,000 barrels, or 14 percent in the first six months this year over the same 1940 period, a survey compiled by the Bureau of Mines states. Due to heavy curtailment of maritime shipping, however, diesel and gas-oil demand increased only 2 percent, the survey states.

The bureau reports expectation that the fuel-oil demand will increase due to defense activities. Basing forecasts upon the bureau figures, it appears that the total 1941 fuel-oil demand on the West Coast, even with curtailed exports, will run close to if it does not exceed 100,000,000 barrels, as against less than 95,000,000 barrels last year and about 90,800,000 in 1939.

"Prediction of the probable course of fuel-oil distribution during 1941," the survey states, "is made difficult by war conditions, particularly the transportation problem resulting from the transfer of tankers to Great Britain or the Atlantic Coast—and the Japanese situation.

"However, such large users of fuel oil as merchant vessels and the United States Navy cannot use substitute fuels, and while the railroads may be able to substitute coal to some extent in the eastern and northern part of the Pacific Coast territory, it hardly seems possible to do so in California because of the transportation problem involved.

"It may be possible to use substitute fuels for heating purposes and natural gas may supplant some fuel in California if it can be made available more readily than oil. Nevertheless, it is evident that fuel oil is a basic factor in the defense program and must be made available to support it, so it is reasonable to assume that domestic demand will continue to rise with industrial activity and trade.

"On the other hand, fuel-oil exports during the last half of 1941 probably will suffer a severe decline.

"Shipments of heavy fuel oils exceeded 1940 shipments during the first six months by 344,000 barrels, but this was offset by a decrease in gas-oil and diesel-oil shipments of 760,000 barrels. Kerosene shipments during the six months period dropped from 1,190,000 barrels to 330,000 barrels."

Total fuel oil demand in the Pacific Coast territory and for export in the first six months this year was reported at 50,780,000 barrels, contrasted with 44,880,000 in the same 1940 period and 43,428,000 in the first half of 1939. Gas-oil and diesel-oil demand in the first six months this year was 14,200,000 barrels, compared with 14,733,000 barrels in 1940 and 14,125,000 barrels in the first half of 1939. Kerosene requirements were 1,217,000 barrels compared with 1,871,000 in 1940 and 2,103,000 barrels in the first half of 1939.

Illinois Production Exceeds 400,000 Daily; Nation Down

United States crude oil production came down sharply during the past week, ended September 6, as Texas fields were closed in for three days against two the previous week, the national output having averaged 3,810,950 barrels daily. That production compared with 3,993,775 barrels daily the previous week, a decrease of 182,825 barrels and it was 150,000 barrels under market demand as estimated for September by the Bureau of Mines.

Texas averaged 1,254,250 barrels daily, against 1,451,700 the week before, and output temporarily was about 125,000 barrels under demand.

Featuring the production situation for the week was a continued expansion of Illinois output, which rose back above 400,000 barrels daily. The new average of 402,900 barrels daily compared with 386,600 the week before and was 10,000 barrels above estimated market demand, although markets doubtless can be found for all the oil that Illinois currently can produce.

California production rose to 640,900 barrels daily from 632,000 the previous week, and was about 6000 barrels above demand. Oklahoma increased from 431,525 to 437,600 but still was about 50,000 under demand. Louisiana rose from 331,950 to 333,450 barrels and was about 10,000 over demand. Kansas was cut back from 254,300 barrels daily to 229,400 and for the week was 10,000 under estimated demand.

World-Wide Developments

Columbia Government Well in Trouble Again

Drilling operations at the British Columbia Government well at Commotion Creek, 85 miles west of Dawson Creek, in the Peace River block, ran into another snag recently with the drilling tools being stuck at 5600 feet.

The trouble was encountered as drillers were making new hole past the area where tools became jammed last fall, and, according to latest meager information, drillers have been unsuccessful thus far in clearing the hole.

Drilling of the well has been beset by one difficulty after another. Something like $530,000 has been spent or appropriated by the provincial government for work in connection with the well, including construction of the road from Dawson Creek.

Drilling in the last few hundred feet has been in exceptionally hard formation with the bit making as little as a foot each 24 hours. Indicative of conditions is the fact that in drilling to 5000 feet, 258 bits were used while the average for equivalent depth in Turner Vallley is about 65 bits.

Western Canada Faces Serious Gasoline Shortage

A serious gasoline shortage in Western Canada this fall and winter was indicated in a statement issued by G. R. Cottrelle, Dominion oil controller.

The controller said the Turner Valley oil field could not meet the crude oil requirements of the West.

Further, according to Mr. Cottrelle, there is a lack of facilities to ship petroleum products into the West from Eastern Canada.

Before the war started, he said, 27 tankers were serving Canada with oil. Now there were only eight in the service.

Last year 1,500,000 barrels of gasoline were shipped from Ontario to Western Canada. Today there are not sufficient tankers available to permit continuance of shipments on this scale.

Cottrelle said he could give no assurance that the United States would make larger tanker tonnage available to Canada for other than war use.

"Upon depletion of present gasoline stocks—possibly within a few weeks—motorists will be limited to two grades of gasoline and they will have to choose which one they want," the oil controller said. The grades offered will be either 75-78 octane or 66-70 octane. These are the present octane ratings of ethyl and standard gasolines, respectively, now sold in Alberta.

New Wells Fail to Help Turner Valley

With 40 more crude oil wells in operation, Turner Valley is producing very little more oil now than at this time last year despite additional war emergency quotas imposed at the request of the Dominion oil controller, official figures issued by the Conservation Board revealed.

With a ttoal of 121 crude producers, the valley averaged a production of 26,377 barrels daily during the week ended August 26 last year.

With a total of 161 crude producers, the valley averaged 26,583 barrels daily —an increase of only 206 barrels daily over production in August, 1940.

Decline in production of the older wells in the field, particularly in the south end of the valley, and the failure to drill sufficient wells to make up for declining production in old wells is the reason given for this situation by oil men.

The Prairie well, for instance, was producing 200 barrels of crude daily a year ago. Today it has a quota of only 91 barrels daily.

But for most satisfactory results at wells drilled in the extreme north end of Turner Valley, where the field's largest crude oil wells are now located, crude oil production would now be far

less than the yield at this time last year, it is stated.

British Again Cut Motor Fuel Supply in Half

British motorists are preparing for a further heavy cut in their already slim gasoline allowances set by the government. Next month the "basic" gasoline ration which private cars have received unchanged since the outbreak of war will be halved. The effect of this reduction will be to cut a driver's mileage from about 200 miles per month to only 100 miles.

This severe cut in basic rations for October is of retroactive character, being designed to effect a total reduction of one sixth in gasoline consumption through August, September and October. The reduction was announced on July 1 but was so ordered as to become effective through the 50 percent cut in October. In addition to a basic ration the British driver is allowed a supplemental ration which varies with his particular essential needs.

Venezuelan Production and Exports Show Gain in June

Lago Petroleum Company and Standard Oil Company of Venezuela made appreciable improvements in their operations in Venezuela during June, a reflection of a general gain in the country's petroleum industry. Lago's daily average production was 222,271 barrels, compared to 220,763 barrels in May. Standard's June production averaged 101,033 barrels per day, as against 99,216 barrels in May. The two companies' June exports of crude totaled 9,121,261 barrels, an increase of 1 percent over May exports and 35 percent over exports in January.

Total Venezuelan exports in June were 15,900,000 barrels, whereas exports in May were 200,000 barrels less. These quantities represent a marked improvement over exports from Venezuela in December, 1940, when shipments were only 9,800,000 barrels. The gains have followed greater availability of tanker tonnage for refined products from Venezuelan crude that has developed since last year.

In eastern Venezuela, Socony-Vacuum Oil Company was coring sandy shale below 10,279 feet in Guario 3, cleaning out Guario 4 with total depth below 6770 feet and testing Anaco 1, total depth 11,300 feet.

Sociedad Anonima Petrolera Las Mercedes is drilling below 700 feet in Mercedes 2 in Guarico state, Venezuela.

Plan Two Tests in Magdalena River Valley Area, Colombia

Preparations to spud in two new tests in the Magdalena River Valley are reported from Colombia. Shell Petroleum Company of Colombia is clearing site for El Doce 1 on a 47,784-hectare concession in Magdalena Department about 150 miles from the Caribbean. The company has built a 50-mile road from El Banco on the Magdalena River. Richmond Petroleum Company is reported about to spud in Culimba 1, a test on the Villamizar Concession.

Colombian Petroleum Company was drilling hard sand at 2490 feet in Tres Bocas 2-A on the Barco Concession two weeks ago, coring sand and shale in South Sardinata 1 at 4540 feet and completing derrick for Socuavo 2.

Washington Roundup

[*Continued from page 15*]

the purpose of stiffening the people up to a warlike frame of mind.

"Those of us who are in Congress are told no more about the real facts of the situation than the people back home. There is no more frankness with us than there is with the press, rather less of it. If Mr. Roosevelt wants unity, he will have to give up the 'hush hush' policy and take the people into his confidence."

Miscellaneous

Creation by President Roosevelt of the Supply Priorities and Allocations Board (SPAB) led to a reshuffling of the OPM into six divisions and brought into the picture Charles H. McNeese, formerly a valuation engineer with the Continental Oil Company, Ponca City, Okla., as a specialist in the fuel section of the price division in the OPA.

During the week President Roosevelt issued his second proclamation under the Cole Act, authorizing the Southeastern Pipe Line Company to exercise the right of eminent domain to obtain rights-of-way for its line from Port St. Joe, Fla., to Chattanooga, Tenn. The line is constructed with the exception of some 17 miles which includes points at which the company has been unable heretofore to cross railroad tracks, it was said.

Late last month the President granted condemnation rights to the Plantation Pipe Line Company for its line from Baton Rouge to Greensboro, N. C.

Despite Japanese threats of action to close Asiatic waters to American supplies to Russia, the first American tanker carrying aviation gasoline to the soviet arrived at Vladivostok September 3, according to advices to the Maritime Commission.

Appointment of Ralph P. Russell, superintendent of car service for the Pennsylvania Railroad, as chief of the rail transportation section of his transportation division was announced September 5 by Davies.

Gulf Coast refiners were notified by the OPA on September 4 that there was no objection to their charging 6½ cents per gallon for regular gasoline, a price they had requested approval of on July 16.

It is explained that the price was held up pending a study of operating costs, particularly of small refiners. Since it is expected that the 6½-cent price will apply only to gasoline produced by small refineries and normally sold in the Gulf Coast area.

Tanker Data Sought

Senator Charles W. Tobey of New Hampshire, renewing his effort to ascertain just how many tankers have been transferred to British service, wrote another letter to the oil coordinator during the week, asking for a "clear-cut, informative and definite statement" on the oil situation as it affects New England.

Also, the Senator wrote, "I would appreciate it if you would further advise me how many tankers have been transferred to Russia, what effect this will have on further gasoline shortage in the East and how many tankers it is contemplated to transfer to Great Britain and Russia in the near future."

Oil for Philippines

From Hyde Park, President Roosevelt acted to keep American flag tankers in domestic service by lifting a 37-year-old prohibition against shipments of oil products to the Philippine Islands in vessels of foreign registry.

Brought into the coastwise service by the old law, the Philippines have been dependent upon American tankers for their supplies, a satisfactory situation in normal times but decidedly not so in the face of a curtailed tanker fleet and a greatly expanded military machine in U. S. Pacific possessions.

With the lifting of the ban on the entry of foreign shipping into this segment of our coastwise traffic, the President paved the way for establishment of a line from the Dutch East Indies to the islands, operated by Dutch vessels, easing the situation on the West Coast, which is facing curtailment of supplies as a result of the transfer of four tankers to carry aviation gasoline to Russia.

In some quarters, the move was seen as another step to increase the economic pressure against Japan.

U. S. FIELD OPERATIONS

Illinois Basin

Wildcats in Several Counties Show Favorable Indications

Pipe set at Devonian wildcat in Clinton County; Fayette wildcat recovers oil saturation; Franklin pool opened by McClosky producer; Clay wildcat sets pipe.

Hamilton County: A half-mile south of production in Barden field, Cameron Brothers' Lockwood 1, NE NE NW 23-6s-5e, abandoned year ago through McClosky, flowed 833 bbls in 24 hours from Aux Vases at 3084-99 ft, after shot, following reworking of hole and setting of pipe to Aux Vases. Kingwood Oil Co.'s Hatcher 1, NW NW NE 14-6s-5e, northwest outpost to field, found Aux Vases shaled out, drilling to McClosky.

Clinton County: Texas Co. perforating casing opposite Devonian show in Gray 1, 4½ miles northeast of Carlyle, NW NW SE 35-3n-2w, total depth 2684 ft; on drill-stem open 30 minutes 1000 ft of oil and 1200 ft of salt water showed; if this test is successful in Devonian will be first producer in formation in area where there is not shallow production; Gray 1 cored Benoist saturation 1200-25 ft also.

Fayette County: Luttrell's Ford 1, NE NE NW 31-5n-3e, Shell farmout, shut down on orders, total depth 1890, after recovering 6½ ft tight Bethel saturation; may set casing to test.

Franklin County: Mohawk Drilling Co.'s Stewart 1, NE NE NE 11-6s-2e, mile north Benton, swabbing 20 bbls hour after acid in McClosky at 2789-94 ft; mile and half north of Tar Springs production in Benton field.

Clay County: Carl Robinson's Coggan 1, W½ SW SW 17-4n-8e, two miles northwest Sailor Springs field, woc with pipe on McClosky; will perforate opposite upper McClosky show at 3040 ft; Tar Springs saturation at 2368-81 ft. F. B. Williams' Keck 1, NE NE SW 34-4n-7e, mile south Sailor Spring field, testing Tar Springs, total depth 2323 ft.

Jefferson County—West outpost to Woodlawn field, Magnolia Petroleum Co.'se Rynski 1, NE NE SE 34-2s-1e, woc with pipe at 1987 ft, Benoist.

White County—Yingling & Hays' Shepard 1, NE NE NE 5-4s-10e, damaged casing with 20-quart shot of nitro; before shot oil stood 1100 ft in hole from Cypress, total depth 2925 ft; 6 miles west of Calvin.

Indiana

Posey County—Morgan H. Brown, John Nelson and Ernest Eslick's Reichart 1, SE NW SE 25-7s-15w, Point Township wildcat, was shut down at 2150 ft, considering drilling ahead, after Tar Springs section proved to be shale. Drilling at 2625 ft, dry through the Cypress, was Morgenstern Oil Corp.'s Mentzer 1, SW NW NE 34-5s-14w, Carter Oil Co. farmout northeast of Savah. Tar Springs 2259-62 tested salt water and no oil on drill-stem test.

Spencer County — In the Hatfield area, J. Wilson et al E. McCoy 1, NE NE NE 12-7s-8w, abandoned 1075 ft, dry through Waltersburg. In the Rockport gas field, Texas Co.'s Scamahorn 2, NW SE NW 29-7s-6w, was a new attempt at an oil well in Palestine sand; an estimated 10,500,000 cubic ft of gas has been mudded off and casing set at 918 ft.

In Union County, Kentucky, five miles north of Spring Grove, Sun Oil Co., Kentucky Natural Gas Co. and Basin Drilling Co. abandoned Reyburn 1, through dry McClosky.

Oklahoma

Apache Field Opened in Caddo County; 68 Barrels Hour

Sinclair Prairie brings in first producer for Apache field of Caddo County, gauges 68 bbls first hour; new Misener sand pool discovered in Lincoln County; possible new shallow play for Seminole County in the offing as wildcat waits for test; East Cromwell pool, Okfuskee County, active; Pottawatomie County area pays off.

Caddo County: Sinclair Prairie Oil Co.'s Lewis 1, NE NE SW 2-5n-12w, flowed 68 bbls first hour after washing in to put first oil into tanks of the Apache field, first well drilled by Texas Co., junked, operators' second well, Smith 2, SE SE NW sec 2, blew out, was killed, whipstocked and is drilling cement plug with hole bottomed at 3433 ft; Sinclair well found Wilcox sand 64 ft higher than Texaco Smith 2, set tubing to 3308 ft, bottom of hole 3342 ft, initial hour's gauge was through ½-inch tubing choke, gas est 200,000 ft daily, well making some wash water, testing to continue. Wilcox cores on both wells showed good saturation.

Lincoln County: Asa Lee Mayes' Sowards 1, SWc 15-15n-6e, 3 miles north of Stroud, Misener sand 4049-4058 ft, plugged back from 4070 ft, shot with 20 qts, reshot 40 qts, filled 3000 ft oil, cleaned out, flowed est 100 bbls in first 1½ hours, testing; no offsets announced.

Seminole County: Keener Oil & Gas Co.'s Homestake 1, SWc NW 28-7n-7e, east of Little River pool, flowed 15 bbls oil in 45 min on drill-stem test in Senora sand 2124-2139 ft, core from top to bottom showed good saturation, waiting on cement for test.

East Cromwell Pool: Shell's Hario 1, NE SE NW 35-11n-8e, flowed 367 bbls in 5 hours, total depth 3434 ft in Cromwell sand; operators' Van Pelt 4, SE NE NW 35, waiting on cement, 7-in 3402 ft; Palmer B-1, SE SE NW 35, and Smith 5, NE SW SW 35, work starting; operators' Smith 3, NW SE SW 26 drilling 3880 ft, Van Pelt 5, SE SE NW 35, drilling 2400 ft, Smith 4, drilling 2190 ft.

Pottawatomie County: Amerada's Welfelt 1, NE NW NE 34-8n-4e, Hunton lime 3826-3897 ft, 7-in 3830 ft, flowed and swabbed 402 bbls in 13 hrs after acid, completed Sam Viersen's Tiffin 1, SW NE NW 27-8n-4e, acidized 3916 ft in Hunton life, flowed 845 bbls in 25 hrs, pinched in for testing.

Kansas

Gorham Pool in Russell County Extended Northeast

Russell County wildcat extends Gorham pool; important Reno County test dry; wildcat pumps 25 bbls of oil and 4 water per hour to open new Sedgwick County pool.

Russell County: Derby Oil Co. et al's Dilliner 1, ECL SE NE 35-13s-15w, extended Gorham pool half-mile northeast, rated 352 bbls oil and 144 bbls water daily, topped Arbuckle dolomite 3322 ft, set 7-in and drilled to 3330 ft.

Reno County: Hall-Jordan Oil Co.'s Stucky 1, C N½ NW SW 31-25s-5w, topped Arbuckle dolomite 4019 ft, drilled to 4043 ft, no shows, abandoned.

Eastborough Pool: National Refining Co.'s Thompson 1, SE SE NW 4-27-2e, east of Wichita, one mile east of Eastborough pool, topped Mississippi lime 2965 ft, set casing, drilled to 2967, reported 1400 ft fillup; testing. Before drilling plug some water and oil coming in from upper zones.

Barton County: W. N. Bartlett et al's Moran 1, NW NW 25-17s-11w, east of operators' Wondra 1, SE NE NE 5-17-13w, West Ainsworth pool discovery, topped Arbuckle 3288 ft, core from top to 3299 ft recovered 10 ft good saturation, 7-in set on bottom, drilling plugs.

Rice County: Continental's Johnson 1, SE NW NE 28-20s-6w, 2 miles west of Bornholt pool, drilled to 3406 ft in Mississippi lime, tested 50 ft water, small show oil, deepened to 3434 ft, water increased, shut down for orders. Earlier had good show at 3392 feet. Indicates pool edge.

Nebraska

Falls City Chances North And South Held Promising

Operators optimistic over chances for south and north extensions of Falls City pool; two inside wells nearing completion; Ohio Oil Co. stakes location for lower Hunton lime test; twin wells drilling.

Falls City: R. L. Campbell et al's Sandrock 1, NEc SE 20-1n-16e, looming as possible east extension of Falls City pool of Richardson County, topped Hunton 2257 ft, 10-ft core recovered good saturation, perforating casing set to bottom; operators' Schock 5, NE NW 29-1n-16e, showing for south extension of pool, topped Hunton 2348 ft, perforated 2358-2366 ft, oil rose 1400 ft in hole, recementing necessary and will reperforate in lower Hunton, total depth 2428 ft. Ohio Oil Co.'s Keim-Workman 2, NE NE NW 18-1n-16e, new start, drilling 990 ft. Skelly Oil Co.'s Davisson 5, SW NW NE 20-1n-16e, lower Hunton twin to Davisson 1, drilling 1,260 ft. Harry Harper's Sib-

bernsen 6, SE NE NW 20-1n-16e, twin to Sibbernsen 1, drilling 1260 ft.

Shubert Pool: Black Gold Operating Co.'s Long 1, NW NW 32-3n-16e, Richardson County, testing 70 percent water, Hunton lime 2436-2440 ft; operator deepening Watkins "A" 1, C SE SE 30-3n-16e, Watkins "B" 1, NE NW 31, both making water.

Northeast of Verdon: Mitchell & Johnson's Eickhoff 1, NE NW 4-2n-16e, 4 miles northeast of Verdon, in Richardson County, topped Hunton lime 2508 ft, deepened 2 ft, some oil show but all went to water, deepened to lower Hunton, found more water, plugging orders issued.

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TULSA, OKLAHOMA

New Mexico

Lea County Wildcat Seeking Lower Pay

Lea County wildcat fails to maintain commercial yield and seeking lower pay. Halfway pool advanced northeast with above-average pumper. Two active tests in new Salt Lake pool.

Wildcats: Richmond Drilling Co.'s State-Shell 1, C SW SE 22-17s-33e, drilling 4690 ft, having failed to maintain its oil yield resulting from acid treatment at 4589 ft. Marshall and Uscan Oil Co.'s Cunningham 1, ½-mile southwest Pearl, topped Yates at 3370 ft, drilling 4150 ft. J. W. Brown et al's State 1, 6¾ miles west Lovington, testing water shutoff after plugging back again to 5318 ft to acidize. Culbertson & Irwin's Wingfield-Texaco 1, 4½ miles south Corbin pool, fishing bit 3810 ft.

Halfway Pool: Argo Oil Corp.'s Burner-Texaco 3, ¼-mile northeast outpost, filled with oil from regular lime pay at 2615-18 ft; installing pump before drilling plugs from 7-in at 2599 ft. In the Salt pool to the east, Continental Oil Co. et al's Brooks 1-A-7 started as north offset to Leonard & Welch's discovery. Latter's State 2, ¼ mile south discovery, drilling 940 ft.

South Lovington: Stanolind's State 7-E expanded field ¼ mile west with natural flow of 55 bbls of oil in 8 hours via tubing choke, lime 4625-4990 ft.

North Texas

Montague County Wildcat Showing Oil From Strawn

Montague County wildcat shows promise of an oil strike from Strawn, and two recent pool openers are on production. Jack County pool has new shallow oil discovery. Fourth Mississippian strike is in prospect in Clay County. Fargo well has thick Canyon pay.

Montague County: Chapman, McFarlin, Deep Oil Development Co. et al's Fowler 1, 2⅝ miles east of Ringgold, 5800-ft Bend production, logged saturation in broken Strawn sand and conglomerate at 4835-57 ft, and formation tester yielded 210 ft of oil and 120 ft of oil- and water-cut drilling mud, with 2050 pounds bottom-hole pressure. Drilling resumed to continue to Bend in accordance with contract. Gibson & Jennings' Howard 4, 2 miles southeast Holt shallow pool, flowed 120 bbls 43-gravity oil and 30 bbls water on 57-hour gauge, ¾-in choke, after reperforating 51 shots Lower Strawn 3931-40 ft, plugged back from granite 4515 ft. Shell's Thomas 1, 1⅝ miles northeast of Holt pool, gives area its second discovery in pumping 64 bbls oil initial after nitro shot in Strawn at 3032-47 ft, plugged back from Ellenberger at 4144-4646 ft. Hults & Owens' Brite 1, northwest offset their 6000-foot discovery, passed up favorable oil saturation in Strawn at 4544-72 ft, giving further proof that the area has an upper pay zone. Walter Gant's Turner 1, 5½ miles northeast of Bowie, is awaiting casing to test saturation in Bend conglomerate 6222-38 ft.

Jack County: Elmore Oil Corp.'s C. A. Myers 1, southeast part N. F. Rudmose Survey A-1803 and near a 3400-ft Strawn pumping discovery completed February, 1938, by Hanlon & Buchanan, proved new shallow Strawn pay in pumping and flowing 55 bbls. of oil in 6 hours from 2386-88 ft, plugged back from 2395 ft. F. Kirk Johnson et al's Shawver 1, wildcat in southeast part of county, preparing resume after landing 7-in at 5071 ft. Magnolia Petroleum Co.'s Borden 1, northeast corner of county, drilling 5870 ft, proved dry in upper Bend, topped 5515 ft.

Clay County: L. T. Burns et al's Wynn 1, Lot 34, H. Williams Survey, confirmed new Mississippian pool in flowing 76 bbls oil in 3 hours, ¾-in tubing choke, after 48-hour shutin. Production from saturation 5905-67 ft, required 2-stage acid treatment 6000 gallons to make flowing producer. Superior Oil Corp.'s Seigler-Shell 1, SE SW TE&L Section 3211, 5¾ miles southeast above discovery, resumed drilling after dry drill stem test in Mississippian porous lime 6240-94 ft. On latter marker 324 ft low to Wynn 1. Shell's Coleman 2-A, northwest offset New York City pool discovery, flowed 207, 218 and 225 bbls oil on 3-hour potential test, surpassing initial performance from Mississippian 6152-6286 ft. Company's 3 wells rated among biggest in district. Continental et al's Ross 3 expanded Ross-Jolly pool to southeast with initial 900 bbls 43-gravity oil, gas-oil ratio 532/1, used 8000 gallons acid in Bend 5375-5505 ft, plugged back from 5846 ft. Gulf's Worsham-Spring 5, 2½ miles southwest Ringgold deep pool and north offset to company's isolated pumper, awaiting results 5000-gallon acid treatment Bend conglomerate 5585-5694 ft. Filled 4000 ft with oil before acidizing.

Fargo: Amerada's Luedtke 2, east edge mid-section pool, flowed 83 bbls natural 3 hours ½-in tubing choke, Basal Canyon saturation 3890-3955 ft, total depth 3965 ft. Pay section thicker than usual. Company's Andrew 1 assures nominal southeast extension rated 100-bbl pumper after acidizing Strawn 4630 ft.

Wildcat Failures: Cooke County recorded trio shallow failures. W. R. Bourland et al's Drane 1, E. Langford Survey, yielded salt water when casing perforated 1655-70 ft, plugged back from 1752 ft. E. N. Brockman and W. G. Phillips' Cotton 1, B. Garner Survey, halted at 1350 ft. Metzner & Wallace's White 1, ½-mile north Hood, dry in Ellenberger dolomite 1620-29 ft.

West Central Texas

Prolific Gasser Marks New Stevens County Field

Prolific wet gasser opens new pool in northwestern Stephens County. Outpost in new Taylor County pool flows natural from new pay.

Stephens County: Orion Daniel et al's Blach 1, southwest corner TE&L Section 1283, qualified as discovery in gauging 10,900,000 ft of gas with spray of oil daily, acidized 5000 gallons through 37 perforations at 3290-3301 ft

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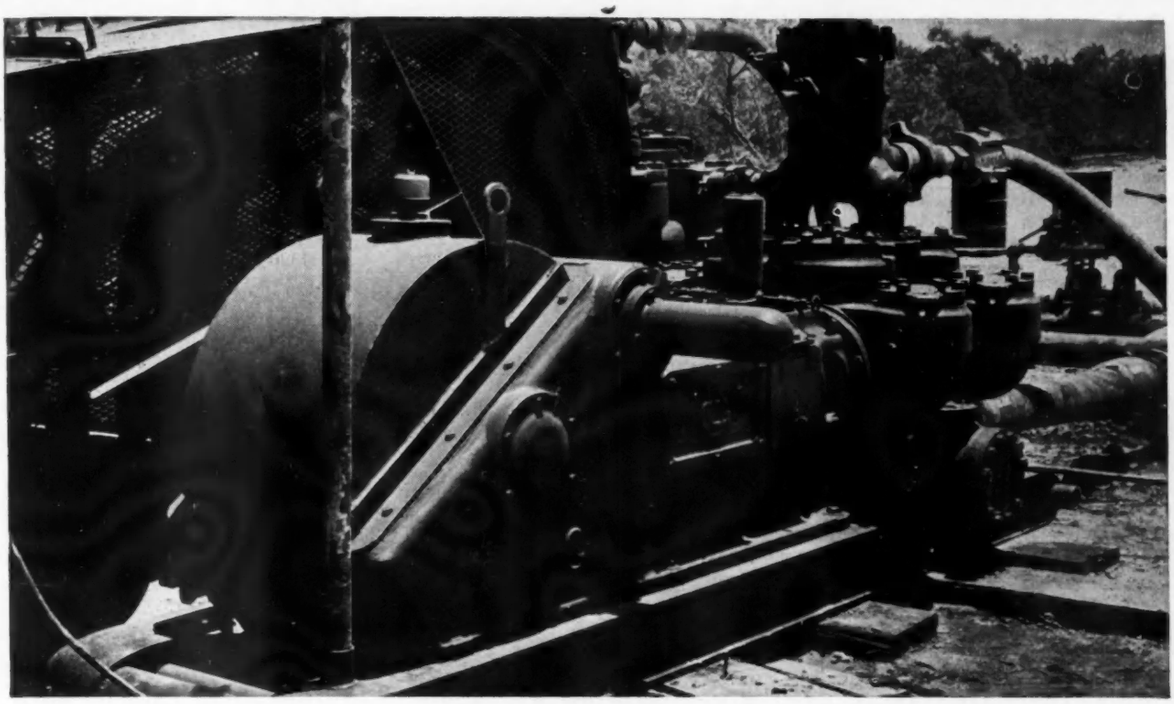

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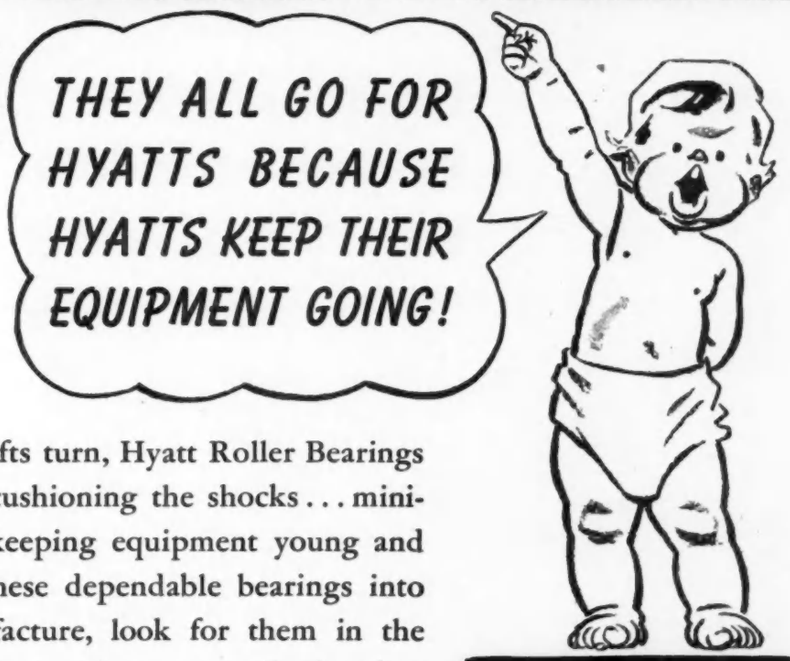

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in Bend, topped at 3292 ft, elevation 1155 ft. Hole carried to 4252 ft, then plugged back to 7-in casing seat at 3420 ft. Attractive market available for high-pressure gas in district through utility lines and for shallow-sand repressuring projects.

Taylor County: Lewis Production Co.'s Huddleston 1, half mile east of Peckham et al's 2013-19-ft discovery pumper northwest part of county, flowed by heads from sandy-lime pay 2622-26 ft, elevation 1792 ft. Well killed to cement 7-in at 2614 ft for completion. Deep Oil Development Co. et al's Higgins 1, wildcat, missed the Peckham zone and was drilling at 2220 ft.

West Texas

Reagan County Deep Well Increases Flow After Acid

A Reagan County wildcat involving the district's record depth production, boosts flow after acid. Ordovician trend between Sand Hills and Abell fields is due another extension. First Ellenberger producer in Crockett County is plugged back to Crinoidal. High gas/oil ratios present in extension wells for Abell and Conry-Davis areas.

Reagan County: Amerada's University 1-R-A, Barnhart prospect, flowed 187 bbls 44-gravity oil on 4-hour potential gauge, 1-in tubing choke, gas/oil ratio 2140/1, following 5000 gallons of acid in Ellenberger saturation at 9017-50 and 9060-60 ft. Plugged back from water at 9294 ft to 9082 ft. On prior gauge it flowed 424 bbls in 8 hours, 1-in choke. Contract made for delivery production by truck to Humble's Kemper tank farm.

Crane County: Continental's Jones 1, 1½ miles south of extension sector of Sand Hills field and on strike with Abell area, confirmed favorable structural position when drill-stem test yielded strong gas blow from Permian at 4096-4230 ft. Drilling 4320 ft to proceed to Ordovician; logged salt 510-1296 ft and top Yates 1380 ft, elevation 2474 ft. Gulf et al's Tubb 1-B, C SW SW PSL Section 28, between Sand Hills and south extension, established gas/oil contact near 5640 ft, 20 ft off bottom, on third drill-stem test that yielded steady flow of 25 bbls oil hourly, with big gas flow in upper Ellenberger, topped at 5604 ft, elevation 2462 ft; running 5½-in below gas zone.

Crockett County: Amerada et al's Todd 1-B, mile northwest outpost Todd deep pool and first to yield production from Ellenberger, set retainer and plugged back to 6103 ft to perforate saturation in Crinoidal topped at 6050 ft, elevation 2512 ft; swabbed and flowed 80 bbls of oil in 10 hours after acidizing perforations at 6202-52 ft in Ellenberger, topped at 6202 ft. Partnership authorized two offsets, and west offset drilling 380 ft. Their Todd 1-C, 3½ miles west of production is drilling at 5910 ft; above Crinoidal.

Abell: Stanolind's Simmons 1, ⅝ mile east of production, rated 269 bbls of oil daily on 3-hour test, ½-inch tubing choke, gas/oil ratio 12,413 ft per bbl, and smaller chokes failed to materially lower gas yield. Production is from Sharp sand in Simpson at 5455 ft. Company's Conry-Davis 2, east offset to its Permian discovery of Conry-Davis pool, yielded 480,000 ft gas and little oil on drill-stem test at 3889-3965 ft, below regular pay, elevation 2374 ft. Drilled to 3984 ft and will perforate casing. Company's Smith 1, north offset above, flowed 105 bbls of oil with 14,513 ft gas per barrel on ½-in choke after acidizing Permian at 3900 ft.

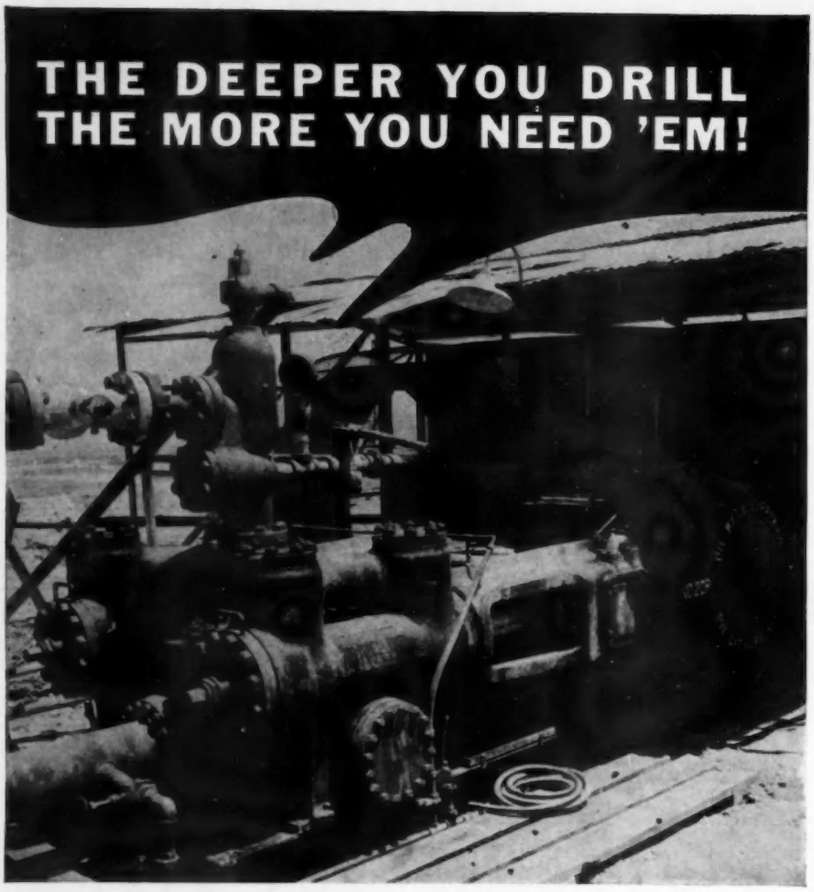
Pecos County: Gulf and L. H. Wentz's Millar 1, projected Ordovician wildcat on 7200-acre block 6 miles south Girvin, encountered granite 4532-38 ft, elevation 2577 ft.

Lubbock County: L. C. Harrison et al's Nairn 1, which has been showing for county's first oil strike for some weeks, has about 1800 feet fluid, including small volume brackish water, in hole while cleaning out shot cavings 10 ft off bottom. The well tested 10 bbls hourly on swabbing test after 460-quart nitro shot at 4884-5002 ft in basal Clear Fork zone of Permian.

Oil Show Below Gas in Sherman County Test

Sherman County semi-wildcat logged oil saturation below gas zones. Moore County oil prospect plugging back from water, and Lipscomb County wildcat to re-test upper show.

Sherman County: Cities Service Oil Co.'s Calvird 1, C NW NW T&NO Section 382, Block 1-T, west edge of company's gas producing structure, will



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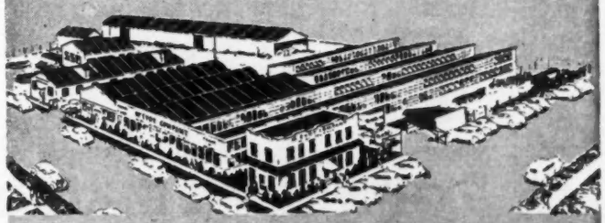

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set 7-in near 3850-ft level to test oil saturation in lime and dolomite 3900-14 ft, elevation 3641 ft. This outpost logged broken gas zones between 2060 ft and 3900 ft. It is ¾-mile south by east of company's Bryant 1, which passed up oil show 3980-88 ft then entered Simpson at 4350 ft and Ellenberger 4450 ft, followed by granite 5125-38 ft, elevation 3636 ft. Latter failed to respond to acid through perforations 3965-85 ft, and plugged back for completion as dry gasser 2868-3343 ft.

Moore County: Texoma Natural Gas Co.'s Kilgore-Gulf 4-G, near C E½ H&TC Section 16, Block 44, amidst dry gassers, tested 6,000,000 ft gas in granite wash 3448-3515 ft, then entered salt water 3550-54 ft, elevation 3673 ft. Hole plugged back 3315 ft, to resume test of oil saturation in granite wash 3285-96 ft, previously rated 15 bbls 37.5-gravity oil daily.

Lipscomb County: Darrouzett Oil Corp.'s Pugh 1, NE NW NW H&TC Section 1126, Block 43, plugged back from salt water 3551 ft to 3100 ft to re-set casing and test nominal show passed up before reaching first water 3278-88 ft, elevation 2570 ft.

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Southwest Texas

New Sands and Extension In Widely Separated Areas

New sand opened East Ganado field, Jackson County. Kelsey field well, Brooks County, cores new sand. Transwestern Oil Company extends Campana field, McMullen County, 1½ mi southwest. Wildcat 7 mi n Samfordyce field, Starr County, indicates new field.

Lower Gulf Coast: Pure's Weise, opened new sand East Ganado field, Jackson County; flowed 136.88 bbls 32.7-gr oil, 8/64 ch, 800 lbs tp, csg sealed. Perf 6000-08 ft, sand 6000-20 ft, bottom 6360 ft, 5½-in 6232 ft.

Sinclair Prairie's Volkmer 1, Texana field, Jackson County, still testing oil show perf 5102-06 ft, 750 lbs tubing. Would open first oil production in field.

Magnolia's State-Marshall 9, Kelsey field, Brooks County, cored sand 4985-92 ft, recovered 30 ft oily mud, 70 ft oil; sand 5029-34 rec 1680 ft sw, dr to 5050 ft, stuck drill pipe 4850 ft, fishing.

W. R. Davis' Brownson 6-A, defined Garwood Cockfield production, Jackson County, on west, abnd 6144 ft.

Joe Stelzig et al's Everett 1, blk 72, 1 mi s White Creek field, Live Oak County, and in deeper sand, waiting on drilling permit before completing. Cored oil sand 1846-56 ft, set 5½-in csg atop sand. Likely will open new field.

Wilcox Trend: Edwin M. Jones' West 3-B, George West prospect, Live Oak County, abnd 9733 ft. Flowed gas, 45 gr oil, sw on 10-day test from perf 8920-44 ft in Carrizo zone.

J. McCurdy, Jr.'s Lupe 1, 14 mi ne Artesia, LaSalle County, ran high, but poor sands, abnd 5510 ft.

Union Oil Co.'s Volpe & Benavides 1, Pescadito prospect, Webb County, drilled through Wilcox, abnd 7018 ft.

Laredo District: Transwestern Oil Co.'s W. T. Ferguson 1, Sec. 104, 1½ mi sw Campana field, McMullen County, flowed 4000 mcf gas, 8 bpd oil 7/16 ch 950 lbs tp, 1010 lbs cp, perf 3067-70 ft, td 3135 ft, Pettus 3154-73 ft. Extends field.

Bid-Rich Oil Co.'s C. Palacios 1, cored sand 2867-72 ft with 3.2 percent saturation, stuck electric log, recovered, prep to run csg. Would open new field ¾ mi e Randado area, Jim Hogg County.

Rio Grande Valley: Sun's Yturria 1, 7 mi n Samfordyce field, Starr County, gas sand 4125-48 ft, oil odor 4227-34 ft. Dst 4227-34 ft rec 530 ft oil, 105 ft sw 355 lbs ⅜ ch, 20 min, oil 44.2 gr. BPH 2150 lbs flowing, 2190 lbs closed. Drilling below 4280 ft. Would open new field.

Texas Gulf Coast

Montgomery County Wildcat Showing Gas and Distillate

Deep Wilcox wells along trend hold interest; Montgomery County well shows gas and distillate on drill-stem; two new Wilcox operations planned in Tyler County.

Montgomery County: Glenn H. McCarthy is drilling below 8798 ft in Seyle 1, Magnolia area, after recovering 455 ft mud and distillate, some gas, on drill-stem 8448-83 ft, closed in pressure 4400 lbs. Continental's Frazer 1, East Willis area, drilling below 10,301 ft after topping Wilcox around 7492 ft; may be drilled below 12,000 ft. Atlantic's Foster 1-A, Fostoria area, drilling below 10,000 ft. Superior's McWhorter 3, Lake Creek field, drilling below 11,380 ft; encountered regular sands above 10,000 ft and will test deeper possibilities.

Polk County: Gulf Oil Corp. is making new test on Wing 48, Segno field, after cementing perforations at 11,270-290 ft. Sands higher in well will be tested. Pan American Production Co.'s Texas Long Leaf 1, Goodrich area, cored salt water sand 7063 ft; drilling below 7150 ft.

Tyler County: Navarro Oil Co.'s Reid 1, Hillister area, topped Cockfield 4373 ft; drilling below 5780 ft, coring all breaks. H. C. Cockburn is planning two Wilcox tests in Tyler County. One will be on Texas A. & M. College 1332-acre tract 3 miles east of Kirbyville. Second will be in Devils Pocket area

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on a 4000-acre block. Projected depth is 9000 ft.

Walker County: B. A. Ferrell et al are due to set pipe to test Foster 1, Wilcox well 8 miles southwest of Huntsville. Sidewall cores were taken in 2 sands, 5982 and 6120, reported carrying oil odor.

South Louisiana

New Fields Discovered in St. Martin and Terrebonne

Wildcat well opening new field in St. Martin Parish; well completed in Terrebonne Parish to open new field.

St. Martin Parish: Amerada Petroleum Corp. and Phillips Petroleum Co. have set casing to test Arm of Grand Lake 1 in Lake Chicot area after sidewall cores showed 5 oil sands. Well is bottomed at 9555 ft. Sands vary in thickness from 20 to 50 ft.

Terrebonne Parish: Gulf Refining Co.'s Picou 1, Lapyrouse prospect, 70-20s-17e, flowed 237 bbls through 3/16-in choke, tubing 3675 lbs, to open field. Hole is bottomed at 12,149 ft, perforations 10,942-46 ft.

Evangeline Parish: Gulf's Schatzkin 1 extended Pine Prairie field to west, flowing 365 bbls daily through 3/16-in choke from perforations at 8138-48 ft. R. A. Irwin's Johnson 2 extended Ville Platte slightly, flowing 400 bbls daily through ¼-in choke from perforations at 10,060-70 ft.

Beauregard Parish: Atlantic Refining Co.'s Rice Land & Lumber 3-B will test deeper Wilcox sand on west side of Neale field. Regular pay sand was encountered at 8322-45 ft. Bottom of hole is now below 9610 ft.

St. Landry Parish: Brewster-Bartle Drilling Co.'s Richard 1, Cankton area, abandoned at 9010 ft, no commercial shows encountered.

St. Mary Parish: Humble Oil & Refining Co. completed second producer in Bayou Sale field with Canal Bank & Trust 1 flowing 844 bbls per day through ¼-in choke. Total depth is 10,110 ft, oil sand at 10,067-110 ft.

North Louisiana

Catahoula Parish Wildcat Produces From Wilcox Sand

New Wilcox sand oil pool opened in Catahoula Parish; Caldwell Parish wildcat disappoints; H. L. Hunt expands gigantic wildcat campaign in Olla trend.

Catahoula Parish: A new shallow Wilcox-sand oil field was indicated last week in Catahoula Parish, the first for that parish, which adjoins La Salle Parish to east in Carter Oil Company and Phillips Petroleum Company's Tensas Delta B-1, NE SE 15-5n-5e, which showed 300 bbls of fluid daily, 60 percent salt water at 5118-24 ft, total depth 6000 ft. Casing perforated 20 shots, tubing pressure 60 pounds, casing 200 pounds.

H. L. Hunt will drill three wildcats on 7000 acres acquired from Grant

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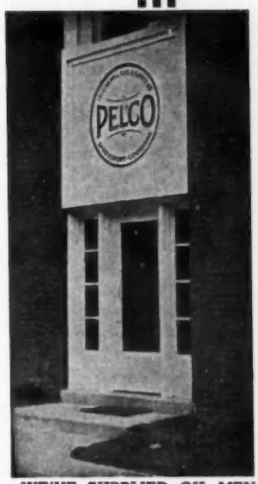

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LONG BEACH, CALIFORNIA

Timber & Manufacturing Co. in Catahoula Parish. Hunt recently leased from one firm 359,000 acres in Wilcox trend. H. R. Scivally took a block in township 7 north, range 4 east for Wilcox wildcat to start by October 6.

Caldwell Parish: Southern Carbon Company's Howard 1, SW SE 13-14n-4e, squeezed perforations at 3959-63 ft in Wilcox after testing salt water; total depth 4004 ft. Four horizons in Wilcox showed indications of production on electric log, one first tested being deepest. Will test all four, unless one found productive.

LaSalle Parish: At Trout Creek, regarded by some as an extension of Nebo field, Scruggs & Todd's Pipes 1, NW NE 19-8n-3e, completed at 3296 ft in Wilcox making 128 bbls oil and 76 bbls salt water daily.

Arkansas

Two Wildcat Attempts Show for Disappointments

Two wildcats in South Arkansas disappointing in Smackover lime; joint prospect of Atlantic and Phillips at Mount Holly to be most interesting Smackover lime wildcat recently projected; series of new tests for Troy.

Fayette County: Tidewater Associated Oil Co.'s Moore 1, SW SE 29-17-24, tested 15 stands of mud and showing distillate at 9349 ft in Smackover lime after logging 5 ft distillate sand in core at 9327-49 ft, and cored ahead at 9398 ft; top Smackover lime, 9268 ft (elevation 267). Ohio Oil Co.'s Garner 1, NW SW 13-16-24, tested 15 stands mud with oil odor at 7097 ft, reaming down core ahead at 7104 ft; top Smackover lime 6939 ft.

Mount Holly: Atlantic's and Phillips' joint Smackover lime wildcat prospect in C NE NW 15-17-18 at Mount Holly, recently announced, is regarded as most promising Smackover lime wildcat prospect in South Arkansas yet undrilled.

Nevada County: Benedum & Trees, discoverers and one of chief operators in shallow Troy field, plan four tests to Tokio at 2100-2200 ft. Both Nacatoch and Tokio produce at Troy.

Two locations in Macedonia, New Columbia County field.

Mississippi

Wilcox Trend Play Extended Across Big River

Standard Pipe Line Company makes yearly contracts with four companies for Tinsley Dome crude; Wilcox trend "play" extends into west Mississippi from Louisiana; Alabama leasing still active.

Tinsley Dome Contracts: Until this month Standard Pipe Line Company (Standard of Louisiana) has been purchasing crude at Tinsley Dome on a month-to-month basis from Hassie Hunt, Jones-O'Brien, Inc., Slick-Urschel Oil Company, and Union Producing Company but it now has entered a yearly contract with these operators, who include the largest in the field.

Wilcox Play: Due to the Wilcox trend play in northeast Louisiana, which has resulted in discovery of many shallow oil pools, leasing and geophysical activity have mounted in west Mississippi counties, including Adams, Claiborne and Wilkinson counties. In Claiborne County Amerada Petroleum Company completed a 7000-acre block in township 11 north, range 2 east.

Alabama: Southwest Alabama leasing is still active, especially in Clarke, Choctaw, Mobile and Washington counties. In Mobile County, Charles Hertz assigned 3500 acres to Humble Oil & Refining Company in townships 3, 4 and 5 south, ranges 2 and 3 west.

Michigan

Reed City Again Extended; Operations at Record High

Reed City field extended half mile north as 27th well boosts potential to 94,350 barrels day. West field edge indicated by low water-cutting well. Gulf starts plugback on Bateson 1 record depth well with St. Peter objective dry.

Reed City: Seven completions pushed the field total to 27 and included Gulf's Campbell 1, C S½ SW SW 19-18n-10w, ½ mile extension. Well failed to flow naturally but acidized to 172 bbls first and 143 second hr. Gulf's Maxine 1, Section 36-18n-11w, Lake County, 1320 ft west offset to 1600 bbl well under test after failing to flow natural and swabbing 3 bbls oil and 8 bbls water per hour. First indicated non-commercial well in field. Completions included Ohio's Stedman 1, Section 30, an inside location, which initialed 350 bbls per hour natural from Monroe at 3584 ft, the company's first producer in the Michigan basin.

Drilling rate at Reed City now highest level for basin since the Buckeye field development in 1937; 43 rigs and 23 derricks and locations. Limited rigs, 13 in the field, delaying several companies on offset obligations. Ohio and Pure now plan drilling full holes with rotary. Gulf so far only company that has regularly drilled full 3600-ft holes to top of producing formation with rotary rigs. Others used combination tools.

Deep Well: Gulf halted drilling Bateson 1, Section 2-14n-4e, Bay County, at 10,477 ft, after penetrating St. Peter from 10,361 ft, and coring only a dense sand horizon. Record depth eastern test now being plugged back to 7800 ft.

California

New Pay Found in Old Midway-Sunset Area

Old Midway-Sunset field deep test strikes new pay; heavy leasing activity in Tipton area, Tulare County; Richgrove test abandoned.

Kern County: North American Oil Consolidated's W. P. 1-28 deep test, Sec. 28-32-23, Midway-Sunset field, cored estimated 160 ft oil-bearing formation from 8874 ft to bottom at 9034 ft. Interval 8874-8925 ft carried cuts indicative of light oil, while interval 8925-9034 ft carried a strong kerosene odor and very faint cuts. Opinion of operator is that best chances for commercial production are just ahead, possibly 9400-9500 ft. Showings believed to be upper Vaqueros series.

Tide Water Associated Oil Company's Quinn 46 wildcat Sec. 8-25-27 in the Richgrove area has been abandoned after coring to 3786 ft and finding both the Vedder and Walker wet.

Tulare County: Upwards of a dozen companies are actively leasing in the Earlemart and Tipton areas of Tulare County with 16 sections reportedly having been signed by seven units. Units interested in areas include Continental, Texas and Shell.

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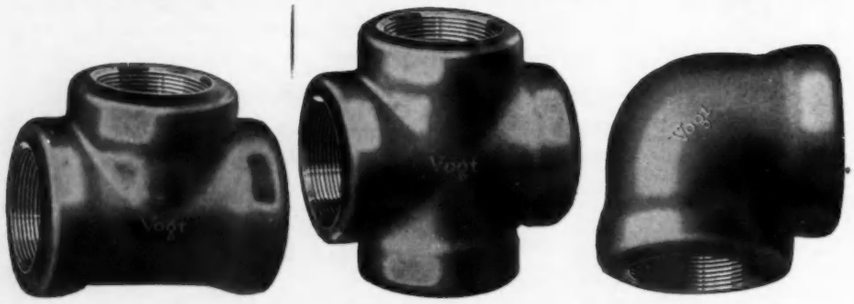

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Nevada County (Troy)—
Berry Asphalt Co., Grayson 3, 4-14-20 ..... 135 2126
Ouachita County (Stephens)—
J. T. Brodie, Tr., Hogue 2, 21-15-19 ..... * 2200

California

Fresno County (East Coalinga Eocene)—
Standard, No. 31-31B 3225 8210
No. 37-31B 3616 8096
Superior, Coalinga Fee 7 .....1403 8170
Kern County (Coles Levee)—
Richfield, KCL-B 81-33 ..... 890 9353
Standard, KCL 20-10 ..... 880 9350
Kern County (Kern Front)—
Republic, Strassburger 13 ..... 216 1961
Kern County (Midway Sunset)—
Willmax Oil Co., Willmax 11 .... 40 1440
Kern County (Mount Poso)—
Ring Oil Co., Bohn 6 ..... 400 1659
Kern County (Richgrove & Jasmine Area)—
Tide Water, Quinn Ranch 45 ..... * 3786
Kern County (Ten Section)—
Shell, KCL A-88-30 .....1349 8220
Los Angeles County (Dominguez)—
Shell, Reyes 124 ..... 82 4235
Los Angeles County (Seal Beach)—
Hellman Est. No. 11 ..... 985 5677
Los Angeles County (Wilmington)—
Atlantic Oil Co., Water & Power 1.. 210 3670
Calokan Oil Co., Stephens Woodman 1 ..... 35 6095
Comstock Oil & Gas Co., PM-15... 3712
Continental Dev. Corp., LACFCD 17 ..... 331 3150
Orange County (Huntington Beach)—
H. C. Morton, Brooks 2 ..... 55 4693
Santa Barbara County (Cat Canyon)—
Standard, Los Flores 2 ..... 450 6465
Santa Barbara County (Santa Maria Valley)—
Union, Stinson 4 ..... 250 5415
Union, Bradley Lands 2-2 ..... 320 4595
Solano County (Rio Vista Gas)—
Superior, McCormack 1 4282

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Atlantic Oil Co., Burnoel 4 (otd 3417) 85 7854
Los Angeles County (Wilmington)—
Pacific Western, Patton 1 (otd 2955) 45 3543

Illinois

Bond County—
Fox & Conray, Beuchle 1, sw sw nw 11-4n-2w ..... * 1360
Clark County—
R. N. Plast, Morgan 3, w½ nw nw 29-10n-13w 7 500
Clay County—
Delta Prod., Crackel 1, s½ sw se 34-4n-8e ..... * 3150
F. E. Harvey et al, Phillips 1, nw ne se 18-11n-14w ..... * 1600
J. W. Saunders et al, Stanford 2, sw sw sw se 13-2n-7e 326 3069
Pure Oil, Pierce 5, c e½ sw sw 15-2n-8e 184 3080
Edwards County—
Magnolia, Fewkes 2, ne nw se sw 7-2s-11e 818 3205
Effingham County—
Carter, Buzzard 1, nw sw sw 31-9n-4e 37 1555
Tennery 1, nw ne sw 31-9n-4e .... * 1694
Fayette County—
Illinois Ref., Campbell 1, n½ se se ne 1-6n-2e ..... * 1742
Carter, Wood 11-D, w½ nw sw 15-8n-3e 198 3153
Wood 12-D c w½ sw sw 15-8-3e 200 3151
Wills-Gordon 5, se ne ne 35-9n-3e 84 1545
St. Pierre 8, ne se sw 36-9n-3e 15 1574
Wills-Gordon 4, ne nw nw 36-9n-3e 5 1555
Franklin County—
Gilliam, Walker 2, ne se ne 23-6s-2e 155 2128
J. McMarland, I. C. RR Row 1, cn½ se ne 23-6s-2e 115 2128
Gallatin County—
Hiawatha Oil, Stinson 4, se se nw 19-7s-11e 90 2849
Sinclair Wyoming, Williams 1, se sw nw 2-8s-9e (pb 2890) 18 3001
Oil Management Inc., Egypt. T&T 1, n½ ne sw 15-8s-10e (pb 2447½) 13 2460
Ritchey, Fry 1, sw se ne 19-8s-10e.. * 2030
R. B. Martin, Agnew 1, sw sw sw 26-8s-10e ..... * 3047
Hamilton County—
Holst Oils Corp., Faulkenheim 1, se ne nw ne 12-5s-7w ..... * 625
Kingwood Oil et al, Johnson 1, ne se ne 14-6s-5e 829 3198
Texas, Edwards 3, sw se sw 2-6s-6e 46 3060
Ohio, Dunnell 1, se sw nw 11-6s-6e 32 3115
Wilson 5, nw sw ne 6-6s-7e..... 482 3114
Pure, Cuppy 10, c se nw nw 7-6s-7e 200 2996
Cuppy 12, sw nw nw 7-6s-7e 640 3005
Jasper County—
Pure Oil, King "A" 3, e½ sw se 5-5n-10e 146 2820
Dickerson "A" 5, c w½ sw nw 17-5n-10e 403 2850
J. C. Meyers et al, Swick 1, ne ne nw ne 17-6s-10e 28 2880
Jefferson County—
Gulf, Eubanks 2, nw se sw 35-2s-1e 960 1958
Eubanks 3, se se sw 35-2s-1e.... 860 1973
Eubanks 4, sw se sw 35-2s-1e.... 450 1954
Kingwood, 1st Nat. Bk. Woodlawn 4, sw ne sw 35-2s-1e 402 1963
Magnolia, Shirley 2, ne nw se 35-2s-1e 682 1975
Macon County—
Eke, Patton 1, se se sw 1-17n-3e .. * 1000
Marion County—
Kingwood, McGuire 1, nw sw ne 20-2n-4e ..... * 2895
Shell, Hedley 6, sw nw ne 34-4n-1e 26 1372
Geo. Floyd, Meyers 1, nw ne sw 35-4n-1e ..... * 1386
Carter, Morgan 1, sw sw nw 5-4n-3e * 2240
Montgomery County—
Benedum-Trees, Jansen Hrs. 1, sw sw se 3-10n-2w ..... * 3237
Richland County—
Ohio Oil, Koertge 1, s½ se nw 29-2n-14w 1459 3129
St. Clair County—
Stickler, Frye 5, sw sw nw nw 34-1n-10w 140 687
Wabash County—
Thomas B. Scott, Adams 1, se se sw 9-1n-12w 70 2286
E. F. Welch, Price 1, sw ne se nw 14-1n-12w ..... * 1667
Illinois-Mid-Cont., Lincoln School 1, n½ n½ ne sw 20-1s-12w ..... * 2430
Liebernecht, Noller 1, nw ne se 21-1s-12w 45 2038
Dean & Morton, Spinkler 1, se ne ne sw 21-1s-12w 121 1992
Lavender & Hayes, Olendorf 1, s½ se sw ne 21-1s-12w ..... * 2350
1st Nat. Pet. Trust, Guard "A" 2 w½ nw ne se 21-1s-12w 535 1486

[*Continued on next page*]

Summary of Drilling Operations in the United States, Week Ended September 6, 1941

	WELLS COMPLETED								*PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	†Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	.....	.....	.....	.....	.....	.....	1	4	.....	.....	.....	.....	.....
Arkansas	3	2	1	.....	.....	339	113	132	4	4	127	103	153
California	23	21	1	1	.....	14,867	817	788	.....	.....	768	746	1,042
Colorado	.....	.....	.....	.....	.....	.....	13	5	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Illinois	106	85	.....	21	.....	46,880	2,550	2,760	111	111	3,223	3,110	4,532
Indiana	10	6	1	3	.....	917	372	318	12	12	132‡	.....	.....
Iowa	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	.....	.....	.....
Kansas	47	34	.....	13	.....	39,659	1,543	1,388	47	47	1,600	1,411	2,048
Kentucky	8	2	1	5	.....	18	209	234	10	10	82‡	.....	.....
Louisiana	36	24	2	10	.....	4,554	981	1,166	35	35	1,205	1,150	1,658
Michigan	16	11	2	3	.....	37,885	553	852	5	5	594	285	1,093
Mississippi	7	5	1	1	.....	2,559	127	131	.....	.....	.....	.....	.....
*Missouri	.....	.....	.....	.....	.....	.....	36	15	.....	.....	9	7	26
Montana	.....	.....	.....	.....	.....	.....	139	122	.....	.....	.....	.....	.....
*Nebraska	2	1	.....	1	.....	557	61	10	1	1	72	9	69
New Mexico	9	7	.....	2	.....	1,099	251	481	8	8	291	434	559
New York	29	18	.....	.....	11	147	637	719	.....	.....	.....	.....	.....
Ohio	52	15	23	14	.....	95	1,161	651	.....	.....	.....	.....	.....
Oklahoma	55	35	4	16	.....	13,009	1,490	1,499	50	50	1,536	1,270	1,888
Pennsylvania	59	45	7	1	6	47	2,507	2,604	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	7	8	.....	.....	.....	.....	.....
Texas	250	178	8	64	.....	95,286	7,041	7,157	148	148	8,296	7,985	11,170
Utah	.....	.....	.....	.....	.....	.....	2	2	.....	.....	.....	.....	.....
West Virginia	15	1	10	4	.....	15	466	392	.....	.....	163	550	782
Wyoming	.....	.....	.....	.....	.....	.....	90	103	.....	.....	.....	1	1
Total this week	727	490	61	159	17	257,933	21,173	21,543	431	431	18,098	17,556	25,021
Total last week	694	457	63	159	15	199,959	20,446	20,954	844	2,291	17,667	17,086	25,021
Total this year	21,173	13,224	1,591	4,656	1,702	6,009,295	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
‡ No data available before June 14, 1941.
† Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

United States Well Completions—*Continued*

ILLINOIS—Continued

Washington County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Reward Oil Nolting 1, se sw sw 34-1n-1w	*	1557
Maschoff 1, se ne sw 10-1n-1w	15	1532
Maschoff 2, sw ne sw 10-1s-1w	132	1526
Gulf, Maschoff 5, ne sw sw 10-1s-1w	46	1525

Wayne County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Carl Robinson et al, Elliott-Hoefele 1, e½ sw se 27-2s-8e	*	3432
Pure Oil, Johnson 1, c w½ se ne 12-1s-7e	62	3180
Hosselton 5, c e½ ne nw 28-2n-8e	105	2648
Duke 2, s½ se se sw 30-2n-8e	33	2960
Smith Pet., Martin 1, w½ nw se 28-1n-5e	*	3040
Shell, Turner Comm 1, c s½ sw sw 27-1n-6e	1985	3045
Turner Comm 2, c n½ sw sw 27-1n-6e	1144	3065
Texas, Leathers 5, c n½ nw sw 27-1n-6e	5300	3058
Leathers 2, c s½ se se 28-1n-6e	3800	3108
Leathers 3, c n½ se se 28-1n-6e	3900	3105
Wiser Oil, Hillard 1, s½ se sw 27-1n-6e	2000	3085
Hillard 3, s½ ne sw 27-1n-6e	483	3055
Dickey et al 1, n½ ne sw 34-1n-6e	2200	3124
Watson 3, s½ nw ne 34-1n-6e	1080	3106
Ill-Prod. Co. et al, Shreve Hrs., n½ sw nw 34-1n-6e	1750	3117
United Prod. Co., Watson 1, n½ sw ne 34-1n-6e	3274	3115
Olson Drlg. Co., Porter 1, w½ sw se 36-1n-6e	690	3207

White County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Magnolia, Cox 2, w½ ne ne se 5-4s-14w	137	2826
Sisson-Higgins 5, sw nw se 24-6s-10e	90	2076
Sinclair-Wyoming, Donald 6, ne se sw 21-4s-14w	112	2962
McKenzie 3, se ne se 11-7s-8e	116	2744
Phillips, Martha 1, c ne ne ne 2-5s-10e	50	2984
Superior, Fitton 19, nw ne nw 23-4s-14w	124	2880
Fitton 23, se nw nw 23-4s-14w	3	2945
Fitton 16, se ne nw 28-4s-14w	200	2860
Fitton 20, se nw ne 28-4s-14w	80	2860
Fitton 18, n½ s½ s½ se 28-4s-14w	90	2840
Kern 2, ne se ne 32-4s-14w	29	2860
Collins 5, c se nw 33-4s-14w	240	2600
Sun & J. C. Ellis, Jacobs 12, ne se ne 28-4s-14w	37	2857
Jacobs 15, nw sw ne 28-4s-14w	40	2974
Jacobs 16, ne se nw 28-4s-14w	40	2875
Tide Water, Dennis 27, nw nw se ne 33-4s-14w	175	2735
Baker 3, ne se se 11-7s-8e	135	2906
Shaffer-Stoll, Aud 1, sw ne se 27-6s-9e	32	2685
Cherry & Kidd, Karch 1-A, se sw se 13-6s-10e	83	1395
Karch 2, nw ne ne 24-6s-10e	60	1473
Sisson-Higgins 1, ne ne nw 25-6s-10e	14	2248
Bert Fields, Karch 2, nw se se 13-6s-10e	381	2029
Simon Henry, Hubele 1, se sw sw 24-6s-10e	*	2234
Ryan Oil, Westergard 1, nw nw nw 30-6s-11e	*	2962
Carter Oil, Fuller 1, se se nw 11-7s-8e	534	2181
Fuller 2, sw se nw 11-7s-8e	476	2171
Fisher Oil et al, Ellis 7, sw se sw 11-7s-8e	325	2153

OLD WELLS DEEPENED

Marion County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Magnolia, Young 28, ne sw ne 20-2n-2e (otd 3740)	52	4622
Ohio Oil, J. M. Young 19, se ne nw 29-2n-2e (otd 3432)	241	4625
Texas, Wayman 24, se nw ne 31-2n-2e (otd 3380)	75	4616
Wayman 26, nw sw ne 31-2n-2e (otd 3380)	40	4593

White County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Sun, Greathouse 4, sw ne nw 4-5s-14w (otd 2910) (pb 3046)	36	3069

Indiana

Decatur County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Hoosier Pub. Utility, VanKamp 228, c ne ne 15-9n-9e	¶145.520	929

Gibson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Continental Oil, Bozeman Land Co. 45, c nw sw nw 23-3s-14w	180	2165
Bozeman Land Co. 42, nw nw nw 26-3s-14w (pb 2675)	15	2845

Posey County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Continental Oil, Kleiderer 11, nw nw ne 33-3s-14w	528	2897
Whisenant & Trenchard, Bundy 1, c sw ne se 17-6s-14w	*	2825
Central States Oil, Breeze 1, sw sw sw 19-6s-12w	100	1994
Ceifert "C" 1, nw nw nw 30-6s-12w	82	1105

Spencer County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Troy Refg Co., Anderson 8, se se ne 11-6s-4w	*	1029
Jess Wilson et al, McCoy 1, ne ne ne 12-7s-8w	*	1075

Vanderburg County—

Company, Well and Location	Init. Prod. Bbls.	Depth
L. Sparrow, Steinkamp 3, nw sw nw 5-7s-11w	12	1074

Kansas

Barber County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Pryor et al, Ishmael 1, sw se sw 35-34s-11w (pb 4727)	*	5354

Barton County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Republic Natural, Harzman 2, cn½ ne sw 33-16s-11w	3000	3330
Cities Service, Hoffman "B" 5, c s½ se nw 7-16s-13w	2959	3351
Gulf Oil, Schnewels 1, nw ne ne 7-17s-11w	1812	3343
Champlin, Burmeister "B" 1, c e½ ne sw	108	3333
Bartlett et al, Wondra 1, se ne ne 5-17s-13w	296	3361

Butler County—

Company, Well and Location	Init. Prod. Bbls.	Depth
T. H. Davis et al, Maxwell 2-B, se sw sw 31-24s-4e	*	2733
Adair et al, Lang 1, sw sw se 2-25s-3e	*	2815
Asso. O&G, Cook 14, sw se ne 4-26s-5e	35	2637
Phillips Pet., Keighley Unit 26, c sw nw 23-27s-7e	293	3164
Rex-Morris, DeMoss "A" 8, nw nw nw 8-28s-7e	50	2671
Table Mesa, Farrell 6, nw se se 21-28s-8e	25	2669

Cowley County—

Company, Well and Location	Init. Prod. Bbls.	Depth
E. B. Shawver, Wilson 1, sw nw nw se 11-30s-4e	143	2744
Meade Production, McMichael 1, nw sw sw 35-33s-3e	*	3437

Ellis County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Sinclair-Prairie, Slimmer 1, nw nw sw 19-11s-16w	3000	3375
Cities Service, Collahan "B" 8, nw se ne 25-11s-17w	289	3378
R. G. Berry et al, Carmichael 2, c s½ ne se 11-11s-18w	3000	3422

Ellsworth County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Cities Service, Mehl 5, c sl se nw ne 19-17s-9w	3000	3236
Branine & Goering, Stumps 1, c w½ ne sw 33-17s-10w	2879	3245

Graham County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Cities Service, Gordan 1, se ne nw 1-8s-22w (pb 3500)	*	3698

Greenwood County—

Company, Well and Location	Init. Prod. Bbls.	Depth
C. T. Welch, Crawford 1, ne se se 17-28s-12e	*	1098

Marion County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Crown Pet. et al, Pritz 1, c n½ ne sw 26-17w-4e	*	2410

McPherson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Westgate - Greenland, Bethany College 1, c e½ se sw 19-17s-1w (pb 2711)	50	2717
Kiowa Drlg., Reusser 1, se se se 26-21s-2w	*	3660

Norton County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Helmerich-Payne et al, Hewitt 1, c s½ se ne 11-4s-21w (pb 3407)	272	3750

Reno County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Skelly Oil, Smith 4, c n½ ne sw 24-24s-8w	180	3545
T. Dines et al, Hunter 1, c w½ nw nw 18-24s-10w	3000	4221

Rooks County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Cities Service, Burge 1, se se nw 6-6s-20w	*	3534
Krueger et al, Tatkenhorst 4, c s½ sw sw 11-9s-16w	543	3301
Tatkenhorst "D" 2, c e½ ne ne 15-9s-16w	905	3298

Rush County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Schermerhorn, Pascoe 2, ne ne nw 36-18s-16w	208	3584

Russell County—

Company, Well and Location	Init. Prod. Bbls.	Depth
J. J. Hall, Miller 30, c n½ nw se 30-14s-13w (pb 2963)	1174	3155
Skelly Oil, Opdycke 17, c n½ sw nw 32-14s-13w	457	2934
Cities Service, Flegler 2, c w½ nw nw 28-14s-14w	*	3221
Central Pet., Rouback "A" 2, c w½ ne ne 15-14s-15w	413	3265
Sherman et al, Neidenthal 1, c s½ sw ne 23-14s-15w	52	3182
Stanolind, Major 1, se se ne 4-15s-12w	3000	3257
L. M. Machall et al, Eluesner "B" 1, se ne sw 27-15s-12w (pb 3209)	291	3357
Leader Oil, Hinderliter 6, nw se nw 33-15s-13w	3000	3344

Scott County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Atlantic, East Rosine 1, c ne ne 34-19s-33w	*	4800

Stafford County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Stanolind, Brensing 1, c s½ se ne 26-22s-13w	*	3777
Champlin Rfg., Figger 2, c e½ ne ne 9-24s-11w	1850	3790

Woodson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
F. F. Enright, Jones 2, sw sw ne 30-23s-14e (pb 1725)	7	1729

OLD WELLS DEEPENED

Butler County—

Company, Well and Location	Init. Prod. Bbls.	Depth
I. Molk, Loomis 14, sw nw sw 15-27s-4e (otd 2027)	32	2510

Johnson County—

Company, Well and Location	Init. Prod. Bbls.	Depth
McCain & Sherrod, Doan 1, c e½ nw se 34-12s-22e (otd 1585)	*	1715

Rooks County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Krueger, Luhman 1, c s½ ne nw 10-9s-16w (otd 3228)	336	3240

Stafford County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Stanolind, Hartnett 7, c nl nw se nw 13-24s-11w (otd 3789)	3000	3817

Kentucky

Ballard County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Sam Graham et al, Carpenter 1, sw nw nw 15-F-6	*	600

Breckenridge County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Porter Evans, DeWitt 1, 15-O-15	*	520

Daviess County—

Company, Well and Location	Init. Prod. Bbls.	Depth
Schneider & Gwin, Moss 1 (2), 25-O-25	8	668

Hancock County—

Company, Well and Location	Init. Prod. Bbls.	Depth
W. A. Battel et al, Remington 2, 12-P-ee	10	531

McLean County—

Company, Well and Location	Init. Prod. Bbls.	Depth
So. Penn Oil, Kirtley 12, 20-L-28	*	2081
J. B. Lowhann, Glen et al 1-A, 3-M-28	*	1731

Muhlenberg County—

Company, Well and Location	Init. Prod. Bbls.	Depth
C. D. Lambert, Jones 1, 22-H-28	¶.25	1273
E. Evans et al, Clark 1, 19-H-31	*	420

South Louisiana

Allen Parish (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
W. T. Burton, Calcasieu National 1	*	10,921

Calcasieu Parish (Iowa)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Magnolia, Waite 18	55	7330

Cameron Parish (Chalkley)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Humble, School Board 8	*	8610

Cameron Parish (West Hackberry)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Stanolind, School Land 26-C	535	10,061

Evangeline Parish (Ville Platte)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Continental, Fee-Trust 1	160	10,202
Gulf, Vidrine 3	354	10,128

Iberia Parish (Bayou Pigeon)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Plymouth, Brownell-Drews 2	*	8070

Iberville Parish (Bayou Blue)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Superior, Schwing 15	159	6273

Iberville Parish (Bayou Choctaw)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Texas Co., Levy et al 1	*	10,033

Iberville Parish (St. Gabriel)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Titanic, Gueymard 2-B	225	8650

Plaquemines Parish (Quarantine)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Gulf, Plaquemines Land 6-A	443	8620

Plaquemines Parish (Venice)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Tide Water, Buras Levee 12	355	10,452

Plaquemines Parish (West Bay)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Gulf, Louisiana State 1	355	7367

St. Martin Parish (West Lake Verrette)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Shell, Jeanerette Lbr. 9	*	11,335

St. Mary Parish (Cote Blanche)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Texas Co., State-West Cote Blanche Bay	275	9111

North Louisiana

Bossier Parish (Bellevue)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Premier Inv. Co., Wyche 56, 14-19n-11w	*	385
Wyche A-16, 14-19n-11w	*	385

Caddo Parish (Pine Island)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Iala Oil Co., Boisseau 4, 34-21n-16w	15	944
Magnolia, Doan-Thigpen 33, 6-20n-15w	135	1565
C. L. Batchelor, Gloyd 14, 8-20n-15w	15	1542
S. Reele, Sklar 2, 12-20n-16w	10	1555
Stanolind, Dillon 138, 14-21n-15w	35	1671

La Salle Parish (Little Creek)—

Company, Well and Location	Init. Prod. Bbls.	Depth
H. L. Hunt, Tremont A-7, 24-9n-1e	130	2547
Tannehill & Gallagher 6, 31-9n-2e	160	3103

La Salle Parish (Nebo-Jena)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Berkshire Oil Co., Ward 1, 40-7n-3e	120	5332
H. L. Hunt, Goodpine F-53, 16-7n-3e	275	4050
Goodpine F-54, 9-7n-3e	230	4080

La Salle Parish (Olla)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Danica Oil Co., Randall 1, 11-10n-2e	145	2336
H. L. Hunt, Southern Kraft 3, 19-10n-3e	100	2389

La Salle Parish (Trout Creek)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Scruggs & Todd, Pipes 1, 19-8n-3e	128	3296

Red River Parish (Bull Bayou)—

Company, Well and Location	Init. Prod. Bbls.	Depth
J. E. Parham, Haynes 2, 20-13n-10w	*	1422

Sabine Parish (Zwolle)—

Company, Well and Location	Init. Prod. Bbls.	Depth
J. G. Sutton Oil Co., Sabine Lbr. Co. 1, 23-7n-14w	*	3957

Union Parish (Monroe)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Interstate Nat. Gas Co., Fee 110, 6-21n-4e	¶2½	2189
Nemours Corp., Edwards 3, 2-21n-3e	¶1¼	2179

Catahoula Parish (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
Carter and Phillips, Tensas Delta B-1, 14-5n-5e	140	6000

Grant Parish (Wildcat)—

Company, Well and Location	Init. Prod. Bbls.	Depth
E. F. Neely et al, McAdams 1, 19-6n-2w	*	4643

United States Well Completions—*Continued*

Michigan

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Union Oil Co.'s Weist 1, sw nw ne 2-4n-13w	*	1705
Arenac County—		
Don Rayburn, Ort 1, ne ne nw 20-19n-4e	¶1/3	1563
Socony Vacuum, Danckert 1, ne ne sw 18n-4e	*	4342
Clare County—		
Freeman Oil Co., Sutton 1, c e½ sw se 22-17n-4w	*	3852
Sample 1, c w½ sw se 32-20n-6w	250	3120
Montcalm County—		
Belvidere Oil Co., Mackie 1, nw ne se 18-12n-7w	¶2	1289
Osceola County—		
Gulf, Campbell 1, c s½ sw sw 19-18n-10w	2800	3628
Ohio, Stedman 1, c s½ nw nw 29-18n-10w	7000	3584
Weber Oil Co., Baderschneider 1, se sw ne 30-18n-10w	7500	3585
Fatum 2, c n½ sw se 30-18n-10w	6000	3597
Gingrich 1, c s½ ne sw 30-18n-10w	5560	3603
Ritter 2, c n½ nw sw 30-18n-10w	4000	3600
Wilson 1, c s½ ne se 30-18n-10w	4300	3590
Van Buren County—		
Bridger Basin, Melching 1, sw sw sw 1-1s-14w	150	1267
Fortney et al, Reed 1, se se se 2-1s-14w	200	1271
E. G. Hartman, Allen 1, nw nw nw 12-1s-14w	125	1275

Mississippi

Company, Well and Location	Init. Prod. Bbls.	Depth
Hinds County (Jackson)—		
City of Jackson, Fee 4, 25-6n-1e	¶20	2440
Yazoo County (Wildcat)—		
E. C. Johnston, Gaddis 1, 26-10n-1w	*	6021
Yazoo County (Tinsley Dome)—		
Hassie Hunt, Woodruff 2, 7-10n-2w	400	5885
Jones & O'Brien, Stevens C-4, 11-10n-3w	450	4789
Midstates Oil Corp., Cummings 5, 31-10n-2w	555	5024
Cummings 6, 31-10n-2w	732	5045
Phillips, Twiner 1, 6-9n-2w	422	5085

Nebraska

Company, Well and Location	Init. Prod. Bbls.	Depth
Richardson County—		
Ohio Oil, Bucholtz 6, nw sw ne sw 17-1n-16e	557	2299
H. Harper et al, Horn 1, c s½ ne se 35-3n-16e (pb 2580)	*	2654

New Mexico

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County (Wildcat)—		
Neil Wills et al, Zorichak 1, c sw ne 6-20s-31e	*	2142
Eddy County—		
Herbert Aid et al, State-Lucas 1, se ne sw 24-17s-28e	*	955
Comanche Oil Co., Berry 17, se sw ne 24-17s-27e	8	481
Berry 18, nw se ne 24-17s-27e	10	506
Lea County (Maljamar)—		
Barney Cockburn et al, Miller 4-B, c nw nw 23-17s-32e	226	3793
Pearsall 3-B, c sw nw 34-17s-32e	105	4171
Lea County (Mattix)—		
Kenwood Oil Co., State-Texaco 1, nec nw 32-24s-37e	60	3587
Lea County (Monument)—		
Ployhar et al, Williams-Repollo 1, sw nw se 33-19s-37e	90	3904
Lea County (Vacuum)—		
Texas Co., State 11-R, c sw sw 1-18s-34e	600	4710

New York

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegany County—		
Ebenezer Oil Co., Herrick farm, Alma	8	1369
Sawyer & Martin, Wasson farm, Bolivar	10	1420
Floyd Reeland, Rowley farm, Bolivar	6	1130
Allen & Bartoo, Pire farm, Bolivar	5	1049
MacDonell Oil Co., MacDonald farm, Bolivar	7	1277
Ebenezer Oil Co., Emerson farm, Scio	9	1075
Cretekos & Vossler, Norton farm, Scio	9	1059
Helen Randall, Reid farm, Alma	11	1415
Andrews Bros. Oil Co., Minnum farm, Alma	10	1510
Bradley Prod. Corp., Monder farm, Alma	7	1388
Criss Oil Co., Goldman farm, Alma	6	1564
E. J. Phillips et al, Phillips farm, Bolivar	8	1438
McEbenwood Oil Co., Lynch farm, Andover	13	1369
Hopkins, Short Bros. et al, LaFrone Clark, Independence	7	1243
Scio Oil & Gas Co., Fuller farm, Amity	5	678
George W. Sharp, Potter farm, Amity	5	1274
Sawnet Oil Co., Merritt farm, Genesee	9	1437
Shaner & Dermitt, Swarthout farm, Bolivar	12	1370
WATER INTAKE WELLS		
South Bolivar Oil Co., McKelvey farm, Bolivar	..	1356
Mountain Oil Co., Kilbury farm, Bolivar	..	1472
Messer Oil Corp., Miles farm, Bolivar	..	1481
Brothers Oil Co., Crandall farm, Bolivar	..	1367
C. M. Robinson et al, Robinson farm, Scio	..	1243
Albert Oil Co., Witter farm, Alma	..	1255
L. H. Thornton et al, Thornton farm, Willing	..	1178
Bliven Hill Oil Co., Norton-McEwen farm, Amity	..	882
H. W. Patterson et al, Stebbins farm, Scio	..	768
Crowley Oil Co., Peet farm, Bolivar	..	1426
New York Oil Corp., Brown farm, Bolivar	..	1386

Ohio

Company, Well and Location	Init. Prod. Bbls.	Depth
Ashland County—		
Ohio Fuel, Baldner 1	*	3044
Gold Crown, Easley 13	*	680
Athens County—		
Bern Oil & Gas Co., Wogan 3	¶0.37	1017
L. Wallace, Walton 1	¶0.05	1417
Ohio Fuel, Guthrie 1	¶0.82	1185
Wickens et al, Johnson 4	*	1545
Burt Carpenter, Fee 4	2	112
G. R. Cook, Totman 2	*	342
Cuyahoga County—		
William Dempsey, Lister 1	*	3433
Fairfield County—		
City Natural, Stalder 2	¶0.06	2226
Hocking County—		
Abe Snyder, Woodward 12	1	3165
Ohio Fuel Gas Co., Sunday Creek Coal Co. 6926	¶0.52	1159
Holmes County—		
Ohio Fuel, Phillips 1	¶0.3	2587
Jefferson County—		
C. S. Kelly et al, Barnhouse Heirs 6	*	1282
Lawrence County—		
Portage Producers, David et al	¶0.3	1230
Licking County—		
Lacknette, Lee 1	¶0.71	2571
Allen Wiley, Gleckler 1	¶1.25	2612
Ohio Fuel, Licking Co. Bldg. & Saving Co. 1	¶1.9	2740
Allen Willey, Nethers 2	¶0.1	2692
Medina County—		
Preston Oil, Grigsby I-9	5	524
Grigsby R-9	5	508
Clapp DO-5	*	497
McVicker 1	*	361
Ohio Fuel, Aldrich 1	¶0.6	2727
Marine Trust Co., Ross A-1	5	473
Packard A-35	5	432
Meigs County—		
Cooper et al, Bahr 2	*	1686
Frank Utsinger, Hewitt 1	*	650
Nelson et al, Petty 1	¶1.80	891
Bowman et al, Saxton 2	¶0.27	600
Shuster et al, Nelson 4	*	989
Mercer County—		
Wright Oil Co., Gaverns 2	1	1205
Monroe County—		
Hall & Henning, Smith 1	¶0.62	1210
Spangler & McCort, Morris Heirs 1	¶0.23	1290
Old Well Deepened—		
Pure Oil Co., McFadden 3	½	1410
Morgan County—		
Williams et al, Geddes 1	4	370
Muskingum County—		
Pure Oil Co., McHenry & Crude Oil Co. 3	*	4135
Dickson 1	¶7.36	4260
Noble County—		
J. T. Watson, Spence 1	¶0.04	1650
R. L. Smithberger, Smithberger 33	¶0.04	1252
Henry Serscher et al, Morrison 7	½	240
Perry County—		
Hermey Bros., Hermey 23	4	1038
Allegheny Oil Co., Covate 4	3	1079
Shuff & Bucy, Ford 1	40	3400
Preston Oil, Pennington 1	15	3340
Richland County—		
Ohio Fuel, Banner 1	¶0.42	2587
Stark County—		
Lyons et al, Slusser 1	*	4680
Vinton County—		
Kelch Bros., McArthur 1	¶1.0	1980
Washington County—		
William Depuy, Heldman 4	¶0.05	1825
Waxler et al, McDermott	*	1520
C. W. McCall, Ewers 6	3	1644
Koon Run Oil Co., Hendershot 6	¶0.04	1468

Oklahoma

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo County—		
Magnolia Pet., Davis 5, se se nw ne 1-5n-10w	*	3511
Carter County—		
Gibson & Jennings, Voorhees 7, se c ne 20-4s-2w	120	2309
Cleveland County—		
Sinclair Prairie et al, Craig Comm. 1, ne ne se 30-8n-1w	*	7630
Creek County—		
Shell Oil, Bunyard 5, se se se 31-15n-7e	126	2915
Orr "B" 1, sw sw ne 32-15n-7e	¶.5	2808
L. B. Jackson, Devers 1-A, 48 ft w of nw nw se 29-17n-11e	16	1890
Vowell 22, c s½ sw 16-17n-12e	27	1588
Sinclair Prairie, Berryhill 27, se c nw nw 17-17n-12e	13	1555
Garvin County—		
Skelly Oil, Perkins 1, se ne ne 32-1n-3w	*	2661
Grady County—		
Ray Stephens, Inc., Aetna Life 1, c ne nw 27-5n-8w	¶30	5375
Jefferson County—		
Danciger O&Refg., McClain 1, nw nw ne 4-4s-4w	*	3660
Johnson County—		
Baldwin & Reed, Davis 1, s½ sw nw 8-2s-8e	*	2576
Kay County—		
Deep Rock et al, Midgley 1, nw nw se 33-28n-4e	*	3259
Lincoln County—		
Allied Material, Hicks 1, nw nw nw 25-13n-6e (pb 4183)	¶6.7	4312
Logan County—		
McBride, Eastwood 5, ne sw sw 7-17n-1w	192	5516
Marshall County—		
W. P. Morris, Cope-Sublett 1, nw sw se ne 1-8s-5e	*	575
Muskogee County—		
Link Oil, Manuel 4, sw c ne 28-15n 15e	208	1893
Noble County—		
Superior, Donahue 1, sw se se 16-22n-1e	*	4753
Oklahoma County—		
Cities Service, Wisel 7, se sw se 26-11n-3e	340	6604
Okmulgee County—		
Wood Oil, Coles 1-A, ne sw sw 13-12n-12e	¶2	2268
M. W. Lee, Deresaw 1-A, 130 ft w of nw se ne	15	1219
J. Penrod, Fox 26, nw c ne ne 22-13n-14e	18	1545
Harbison, Mack 1, nw c nw se 1-15n-11e	*	1823
Osage County—		
Moore & Skelly, 6, c n½ n½ sw 35-22n-8e	45	2536
P. J. McIntyre, 5, se sw se sw 31-22n-9e	*	1650
Dunn et al, 2, se c ne ne 19-24n-8e (pb 2846)	*	2947
L. R. Oakleaf, 4, se sw sw nw 12-25n-11e	5	1805
Payne County—		
Mid-Continent, Ramsey 16, se ne nw nw 18-18n-2e	2889	2586
Pontotoc County—		
Mid-Continent, Wilson 1, se se ne 26-4n-5e	*	1532
Pottawatomie County—		
Keener O&G, State 1, ne ne sw 16-5n-5e	10	2435
Willis & Becker, Spaugy 2, sw ne nw 6-6n-4e	364	4234
Denver P&G, Decker 2, sw sw se 8-7n-4e	525	4025
Eagle & Helmerich-Payne, School Land "C" 4, 40 ft w of ne nw ne 16-7n-5e	44	2818
Amerada, Peters "A" 1, sw se nw 27-8n-4e	326	3949
Atlantic Rfg., Lee 1, nw nw se 16-9n-4e	358	4628
Simpson-Fell, Billington 2, c ne se 24-9n-4e	133	4153
Anderson-Pritchard, White 1, c ne nw 30-9n-5e (pb 4184)	96	4335
Seminole County—		
Case & Johnson, Damron 1, nw sw nw 15-5n-5e	45	2479
R. W. Simpson, Reed 1, nw nw sw 13-6n-6e	*	2860
McQueen, McCann 5, se ne ne 33-7n-6e	135	2792
Moday, Whitney 1, ne ne se 30-7n-7e	*	2250
Amerada, Campbell 2, c s½ sw sw 30-9n-6e	32	4225
Stephens County—		
T. H. McCasland, Spurlin 1, sw ne sw sw 34-1s-8w	*	2686
Magnolia Pet., Dillard 26, nw ne se ne 2-2s-5w	29	691
E. E. Brown et al, Deaton 1, nw nw se 14-3s-5w	*	2250
Tillman County—		
Cities Service, Goodwin 3, n½ n½ se 1-3s-19w	27	3134
Banker 2, 230 ft s of se ne ne 2-3s-19w	213	3124

[*Continued on next page*]

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth

OKLAHOMA—Continued

OLD WELLS DEEPENED

Carter County—
Roy Kyle, Daugherty 2, sw se sw sw 17-4s-2w (otd 2128).....1032 2260
A. L. Tucker, Shores 4, ne sw sw sw 17-4s-2w (otd 2114).....1070 2220
W. Neustadt, Choate 2, sw nw nw nw 20-4s-2w (otd 1995)..... 827 2146
Okmulgee County—
Standard, Kileen et al 2, ne c sw sw 8-15n-12e (otd 2220)..... 8 2240
Seminole County—
Carter Oil, Browning 2, c w½ sw sw 14-10n-6e (otd 4268)..... 291 4273
Stephens County—
Beard, Brigham 3, nw c sw sw 30-1s-8w (otd 2006 (pb 2458)..... 8 2665
Lewis Sikes, Blades 1, se c ne 32-1s-8w (otd 1705)..... 40 2292
Cities Servcie, Surber 1, sw c sw 33-1s-8w (otd 1708)..... 8 2324

Pennsylvania

Bradford District—
George C. Day, Lundy..... ¼ ....
Mix Creek Oil Co., Fee..... 1 ....
Forest Oil Corp. ..... 1 ....
Forest Petroleum Corp., 2 wells... 2 ....
Niagara Oil Corp., 5 wells..... 5 ....
Bradford Transit Co., 31 wells.... 31 ....
Boyle, Campbell & Raymond, Bing 392 ..... 2 ....
Kahle Oil Co., Norton..... 1 ....

WATER INTAKE WELLS

Forest Oil Corp., 2 wells..... .. ....
Forest Petroleum Corp. ....
Niagara Oil Corp., 2 wells..... .. ....
Esther Oil Co., Inc., Lamton..... .. ....
Middle District—
Gibson, Wade Gas Co., John Obenrader ..... ¶ ....
Alum Rock Gas Co., Cling Switzer ¶ ....
Butler-Armstrong District—
Martin Heck et al, C. Bergman... 1 ....

Southwest Pennsylvania

Armstrong County—
Local Co., Iseman 1.....¶0.02 3500
Clarion County—
Shreffler et al, Phillips 1.....¶0.17 1430
Fayette County—
Boyd Oil & Gas Co., Morris 1....¶0.05 2503
Fike & Spaugy, Tomosek 1..... * 750
Greene County—
H. E. Milliken et al, McCullough 1 1½ 3373
Washington County—
Carnegie Nat. Gas Co., Devore 1..¶0.05 2735
Equitable Gas Co., Jones 1.....¶0.04 2893

North Texas

Archer County (Hull-Silk)—
Blackwell O&G Co.-C. B. Christie, Wilson 7 (pb to 3976 ft)..... 40 4626
Archer County—
Pet. Producers Co., King 19..... 115 1218
King 20 ..... 82 1234
Archer County (Wildcat)—
Cochran & Cain, Minnich 1..... * 1450
Clay County (Antelope)—
Shell, Coburn 14.....1449 3240
Clay County (Wildcats)—
J. A. Coker et al, Barber 1..... * 1410
E. C. Harlin Jr. et al, Owen 1.. * 1350
Clay County (New York City)—
Shell, Coleman 2-A.....5200 6286
Clay County—
Geo. W. Graham et al, Hansard 14 62 1146
Hansard 15 ..... 42 1145
Geo. Golden et al, 1st Texas Jt. Stock Bank 3-C..... 50 1136
Harper & Knappenberger, Bilbrey 3 25 1172
Ted Norwood et al, Stone 1..... * 1202
Perkins & Cullum, Taylor 15-A.. 144 1097
Riner-Fain & Stilley, Hamilton 4 * 1148
Stayton Oil Co., McGregor 14.... 45 1176
McGregor 17 ..... 31 1171
McGregor 18 ..... 44 1176
The Texas Co., Hansard 8..... 9 1111
Frank Wood et al, Taylor 3..... * 1852
Cooke County (Walnut Bend)—
Sinclair Prairie, Atkins 6 (pb to 4940 ft) 133 5023
Cooke County—
Bridwell Oil Co., Flusche 13-B... 8 798
Flusche 14-B 32 774
Harvey Drl. Co., Wilson (Ware) 1 (new pay) 96 2380
High Point Oil Co., Fette 3..... 20 1125
Denton County (Wildcat)—
D. S. Hager-Jones Drl. Co., Waide 1 * 1939
Jack County (Wildcat)—
Hill & Hill, Inc., Kinder 1..... * 3380
Jack County—
Panhandle Ref. Co., Shoun 5-A.... 792 3044
Irion Worsham, Tr., Huckabay 2.. 135 2897
Montague County (Benton-Holmes)—
Joe Benton-J. W. Holmes, Bowers 4 216 3878
Montague County—
Thomas & Harrell, Cunningham 19 7 937
Wichita County—
W. H. Hammon et al, Fee 4-C... 8 612
N. M. Johnson 5..... * 1351
Underwood Oil Co., Stine 9..... * 1352
Stine 10 ..... 55 1316
S. H. Walton et al, Coleman 23 (pb to 362 ft)..... 9 603
Westbrook Oil Corp., Ramming 2-A * 1265
Wichita County (K-M-A)—
The Texas Co., Thom 10..... 896 3855
Wichita County (KMA-Ellenberger)—
Buffalo Oil Co., Ferguson 14-E.... 688 4351
Fain-McGaha Oil Corp., Griffin 7-B-E 1704 4270
Young County—
Falcon Co., King 2..... * 4815
N. Gray et al, Bagley 2..... * 632
Thos. A. Jirik et al, Roenfeldt 1.. 25 1007
C. B. King et al, Dailey 10..... 8 571
Pemeta Oil Co., Robinson 4-B.... * 707

OLD WELLS DEEPENED

Wichita County (KMA-Ellenberger)—
Cochran & Cain, Preston 1-AA (otd 4133 ft) ..... * 4491
Preston 1-C-E (otd 4018 ft)..... 231 4430

East Texas

Kilgore Area—
Shell, J. S. Elder 16-B 1500 3604
J. S. Elder 17-B 1200 3597
Longview Area—
Atlantic, M. Fisher 14 .....3000 3562
Magnolia, Todd-Stinchcomb 19 ...3000 3560
Goolsby 12 .....2500 3556
Selby O&G Co., Snavely 34-A 2400 3571
Stanolind, Stuckey-Thrasher 23-B..1000 3575
Anderson County (Long Lake)—
Tex Harvey Oil Co., Cartmel 6 .... 92 5416
Alex McCutchin et al, Murray 1 (50-ac) ..... * 5289
J. H. Reagan 1 (dual well) 63 5258
Franklin County (Talco)—
Humble, Young 6 ..... 472 4289
Houston County (Grapeland)—
Lone Star Gas Co.-Trinity Gas Corp., Howard 1 .....¶125 6066
Marion County (Pine Island Smithfield)—
H. H. Groneman, Stiles 1, M. G. Nail Sur 17 2291
Valley Osage Oil Co., G. Coor Sur.. † 2474
Navarro County (Wildcat)—
J. B. Daniel et al, Jones 1 ..... * 3104
Rusk County (New Salem)—
L. O. McMillan et al, Pool 2..... * 4281
Wood County (Hawkins)—
R. W. Fair et al, Wallack 1 (1-ac) 374 4847
Humble, C. W. Cumbie 1-B (7.86-ac) 293 4814
M. Hamilton 1 (74/100-ac)..... 477 4768
F. B. Holmes 1 (65/100-ac)..... 408 4835
L. G. Robbins 1 (11.88-ac)..... 372 4828
W. S. Shamburger 1-D (57.66-ac) 507 4633
C. H. Lyons et al, Downing 1..... 406 4848
Navarro Oil Co., Mayberry 1..... 301 4640

West Central Texas

Brown County—
Heltzell & Mendenhall, Edrington 10 ..... * 1307
Ed Selvidge et al, Rogan 1 ..... ¶¼ 1516
Callahan County (Wildcats)—
P. H. Lewellyn et al, McLain 1.. * 602
R. H. Roark et al, Harris 1..... * 342
Callahan County—
J. H. Welch et al, Ogle 3..... 5 398
Comanche County (Wildcat)—
C. D. Lape et al, Auvenshire 1.... * 1690
Eastland County (Wildcat)—
Bartrug & Bell, Crawley 1..... * 1007
Hamilton County—
Lone Star Gas Co., Marwitz 1....¶75½ 2666
Jones County (Wildcat)—
Danciger O&R, Inc., Reeves 1.... * 2730
Shackelford County—
Roeser-Pendleton-Conoco, Cook 6-A-118 ..... 33 1697
West & Honea, Dyer 1..... * 880

Texas Panhandle

Carson County—
Continental, Block 6..... 18 3160
Gray County—
Cities Service, Hughey 23-B..... 81 3239
Danciger O&R, Inc., McLaughlin. 305 3045
King Oil Co., Archer 12..... 216 3225
Skelly Oil Co., Schafer 130..... 510 3280
W. H. Taylor Oil Co., Taylor 9-B.. 384 2967
The Texas Co., M. Davidson 4.... 267 2980
Hutchinson County—
J. E. Crosbie, Inc., Pitts 48..... 290 2800
Huber Pet. Co., Bryan 2..... 210 3237
Gulf & Panhandle Ref. Co., Dial 105 ..... 58 3005
McGill & Malone (was Huffman Oil Co.), Sanford 2.....¶13.2 2966
Phillips Pet. Co., Cockrell 78..... 216 3026
Jordan 16 ..... 179 2977
R. C. Kay 7..... 147 3252
Shell, Harvey Sisters 28-B..... 303 3082
Stanolind, Lewis 11..... 213 2985
Moore County—
Texoma Natural Gas Co., Coon 16-M ¶8.9 3320
Coon 17-M .....¶8.5 3210
Potter County (Wildcat)—
R. & J. Drl. Co., Pavillard 1..... * 4471
Wheeler County—
Sha-Fey Prod. Co., Koons 6..... 18 2428
Smith Bros. Ref. Co., Harlan 14.. 40 2557

West Texas

Andrews County (Emma)—
Harry Adams & Bradley, University-Skelly 3-A 1348 4274
Cochran County (Slaughter)—
Atlantic, Boyd-Humble 22 .....1442 5064
Boyd-Humble 23 .....1568 5025
Devonian et al, Duggan 10-B, Lab 21 ..... 889 5081
Honolulu Oil Corp., Igoe-Smith 8...1288 5053
Geo. P. Livermore, Boyd-Texaco 7..1256 5069
Boyd-Texaco 9 ..... 411 5095

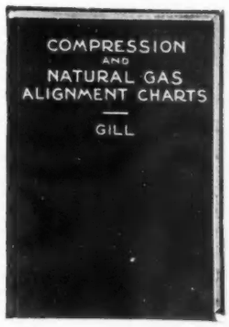
United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth
WEST TEXAS—Continued		
Crane County (Sand Hills)—		
Gulf, Waddell et al 26	1374	4596
Crockett County (Soma-Noelke)—		
Bolsa Chica Oil Co., Bouscaren 1	¶50	1281
M. & M. Production Co., Noelke 1-B	1039	1825
Noelke 1-D	2218	1498
Crockett County (World-Powell)—		
Armer & Armer, Powell 4-D	148	2686
Ector County (Foster)—		
Forest Dev. Corp., Moss 13-H	478	4276
Geo. P. Livermore, Inc., Johnson-Ohio 3-27	486	4172
Sinclair Prairie, Johnson 16-B, sec 48	1131	4225
Ector County (Goldsmith)—		
Gulf, Goldsmith 368	1148	4269
Ector County (Harper)—		
Continental, T&P Land Trust 9, sec 27	216	4160
Ector County (Jordan)—		
Texas Co., McDonald 7	143	3700
Ector County (Wildcat)—		
Sinclair Prairie, Johnson Est. 1	*	4338
Fisher County (McCaulley)—		
F. A. Stevenson et al, Humphries 1	*	3035
Gaines County (Seminole)—		
Amerada, Matthews 6-A	939	5370
Hockley County (Slaughter)—		
Delta Drl. Co., Watson 1	*	5046
Devonian Oil Co., Mallet 1	1126	5046
Honolulu Oil Corp., Mallet 8-B	1088	5010
Slaughter 6-A	1343	4965
Magnolia, Mallet 8-J	1397	5030
Sid W. Richardson et al, Slaughter 19-B	1504	4985
Slaughter 26-B	545	5025
W. J. Richardson et al, Miller-Sun 2	334	4982
Rowan Drl. Co., Mallet-Mid-Continent 3	783	5012
Stanolind, Slaughter 24-B	872	5017
Slaughter 29-B	1292	5015
Texas Co., Mallet 11-E	1548	5037
Western States Gasoline Corp., Frazier 13	3152	4980
Mallet 7-B	1021	5037
Pecos County (Apco)—		
Anderson-Prichard Oil Corp.-M. Warner, Boren 1 (pb 4791)	1472	4804
Pecos County (Shearer)—		
W. H. Street et al, Shearer-Texaco 15	87	1487
Pecos County (Tobarg)—		
Stanolind, Tippett 20-A	4	525
Pecos County (Walker)—		
Shasta Oil Co., White-Baker 1-B	*	2320
Reagan County (Wildcat)—		
Amerada, University 1-R-A (pb 9082)	1122	9294
Runnels County—		
Homer Price et al, King 1	*	710
Terrell County (Wildcat)—		
Texas Cons. Oil Co., Holmes 1	*	2115
Upton County (Gulf-McElroy)—		
Gulf, McElroy 252	1193	3093
Crier-McElroy 55 (pb 2959)	131	3200
Upton County (McCamey)—		
Fred P. Clark & Cooper, King-Texaco 4	*	2250
T. P. Coal & Oil Co., Lane 45-A	209	2085
Trebol Oil Co., Rodgers-Shell 5	430	2710
Rogers-Shell 6	468	2698
Ward County—		
Gulf, O'Brien 185	356	2778
Texas Co., University 2-C	275	2680
University 9-E	1184	2685
Winkler County (Emperor)—		
Sam Weiner et al, Halley-Texaco 1-A	Junked	1115
Winkler County (Keystone)—		
Richardson Oils, Inc., Ben Jenkins-Conoco 1	204	3432
Standard of Texas, Baird 34, sec 19	614	3394
Yoakum County (Wasson)—		
Don Danvers et al, Willard 15	204	5272
Drl. & Explo., Co., Inc., Roberts-Shell 2-A	359	5180
T. P. Coal & Oil Co., Bennett 32	77	5230
Westex Oil Co., Corder-Shell 2	293	5025
OLD WELL DEEPENED		
Ector County (Foster)—		
Stanolind, Griffin 2 (otd 4310)	20	4437
Texas Gulf Coast		
Brazoria County (Old Ocean)—		
Harrison & Abercrombie, Mueller 1	405	10988
Galveston County (High Island)—		
Stanolind, Cade-A 26	160	6362
Atlantic, Fredericks 2	123	8053
Harris County (Clear Lake)—		
Humble, Clear Lake-State 1	444	5900
Harris County (Dyersdale)—		
Jack Frazier, Ed Cool 1	*	4192
Kennedy-Dwyer 1	143	4080
Harris County (Fairbanks)—		
Housh & Thompson, Salge 2	118	6830
Jefferson County (West Beaumont)—		
Stanolind, Hall 1	30	5405
Liberty County (South Liberty)—		
C. D. Ehrhandt, Van de Venter 1	45	4252
Liberty County (Hull)—		
Houston Prod. Co., Heimple 1	392	6788
Guinn Crude, Abel 19	58	781
Southwest Texas		
CORPUS CHRISTI DISTRICT		
Bee County (Wildcat)—		
Heyser & Heard, Huddleston 1	*	4506
Brooks County (Kelsey)—		
San Pat Oil Co., C. C. Marshall 1	87	5050
Calhoun County (Wildcat)—		
L. A. Johnston et al, J. McCamey et al 1	*	7011
Colorado County (Garwood)—		
W. R. Davis, Inc., Brownson 6-A	*	6144
Jackson County (Francitas)—		
Francitas Gas Co., Skelly 2	¶20 & 200	8710
Jackson County (LaWard)—		
Humble, Mike Straus 3	500	5225
Jackson County (Lolita)—		
Cox & Hamon, H. E. Scott 1	600	5954
Magnolia, Rogers 1	600	6409
Shell, Willoughby 5	350	5290
Jackson County (West Ranch)—		
Forest, Dixon 6	150	6330
Dixon 7	150	5657
Humble, Vanderbilt-State 4	900	5652
Magnolia, West 180-A	550	5102
West 184-A	350	5110
West 185-A	500	5584
Jackson County (Wildcat)—		
Gulfboard, Zapalac 1	*	6507
Jim Wells County (Ben Bolt)—		
H. H. Howell, Watley 3	700	5252
Jim Wells County (E. Alice)—		
Henshaw Bros., T & NO Ry 1	400	5370

[*Continued on next page*]

COMPRESSION
AND
NATURAL GAS
ALIGNMENT CHARTS

By **THOMAS T. GILL**



The charts in this book have been found useful in solving field problems arising in connection with the measurement, compression and transmission of natural gas, and in the manufacture of natural or casinghead gas. As many of the formulas in common use in natural gas operations are of an impirical nature, with constants that must be evaluated under varying conditions, it will be found that alignment charts are sufficiently accurate for nearly all purposes except for metering large quantities of gas, and here they serve as an excellent check on other calculations. Contains 41 charts, 65 problems. Price $3.50 Postpaid.

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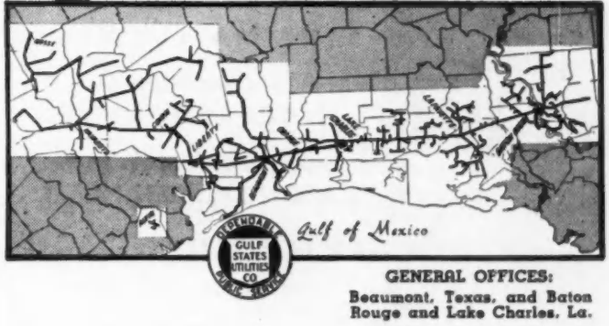

GENERAL OFFICES:
Beaumont, Texas, and Baton Rouge and Lake Charles, La.

United States Well Completions—*Continued*

SOUTHWEST TEXAS—Continued

Company, Well and Location	Init. Prod. Bbls.	Depth
Jim Wells County (E. Premont)—		
Sun, Miller 1	550	5326
Jim Wells County (Wildcat)—		
W. H. Spice, Reed & Lindsay 1..	•	5710
Live Oak County (Oakville)—		
Douglas, Holland & Smith, Hinton 1, 1½ mi sw field	•	2812
Moore Dev. Co., McGriff 4	7	2142
Live Oak County (Wildcat)—		
E. M. Jones, West B-3	•	9733
Nueces County (Agua Dulce)—		
Kilgore Developers, Schulze 2	Junk	5000
Seaboard, Kleberg 1	550	7066
Texon, Clara Driscoll 6	650	7006
Nueces County (Bentonville-King)—		
Southern Minerals, Walker 13	200	5640
Nueces County (Minnie Bock)—		
Tom Graham, Dugger 3	300	3845
Phillips, F. I. Gandy 1	150	5900
Reed & Cox, Parr 2-A	120	3840
Nueces County (E. Flour Bluff)—		
Humble, Ritter 1-C	400	6783
Nueces County (Shield)—		
Stanolind, Ocker 3	¶21.99	7598
Nueces County (S. Clara Driscoll)—		
Texas Conservative, Huie 7	350	5455
Nueces County (Stratton)—		
Bay-Tex, Union Central 10, orig abnd 7161, sidetracked to 6586..	550	7161
Chicago, Wardner 16	500	6615
Wardner 21	450	6615
Southern Minerals, Stratton 24	450	6625
Stratton 25	450	6695
Refugio County (McFaddin)—		
Barnsdall, Marberry 12	•	7342
Refugio County (Refugio)—		
Sunray, Mitchell 1	¶120.0 &	150 7250
Refugio County (Tomoconnor)—		
Quintana, Claude Heard 20	1500	5925
Refugio County (Wildcat)—		
R. A. Bond, Bartholomew 1	•	7009
San Patricio County (Odem)—		
Seaboard, Lane 1, new sand	650	5430
San Patricio County (Plymouth)—		
Plymouth, Welder 119-C	450	6149
Victoria County (N. McFaddin)—		
Gulf, Noble 2	225	5878
Victoria County (Victoria)—		
W. F. Hardin, Buckert 1	150	3091

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County (Casa Blanca)—		
Magnolia, DCRC 4 (292)	•	1949
Duval County (Lundell)—		
Government Wells, Lundell 56	45	1547
Duval (Rancho Solo)—		
Wheeler & Bunn, Peters 7-B	16½	1855
Duval County (Wildcat)—		
Joe Palmer, Parr 1	•	5410
Jim Hogg County (Colorado)—		
Andrade III, Trevino 4-E	350	2930
Humble, King-Colorado 29-B	325	2911
King-Colorado 31-B	•	2934
F. V. Neuhaus, Trevino 3-D	350	2948
Jim Hogg County (Wildcat)—		
Bruce Clardy, East 1	•	4410
LaSalle County (Wildcat)—		
E. J. McCurdy, Lupe 1	•	5510
McMullen County (S. Campana)—		
Transwestern, Ferguson 1, 1½ mi sw field	¶4.0 &	8 3135
Starr County (Boyle)—		
Fidelity, Carruth et al 4-D	•	3480
Starr County (Rincon)—		
Continental, Slick 90-B	400	4175
Wehrle 5	350	4427
Starr County (Rio Grande City)—		
Moss & Grote, Goodrich & Wood 1..	•	1486
G. P. Shelton, H. Wood 1	•	1465
Starr County (Wildcat)—		
Fannie Fitch, Bass 1	•	1433
Gillespie & Sons, Guerra 1	•	2512
Webb County (Killam)—		
O. W. Killam, Garcia-Villareal 15..	75	2075
Webb County (Laurel)—		
H. W. Slater	•	2455
OLD WELL DEEPENED		
Webb County (Carolina-Texas)—		
Foster Barnsley, Webster 7, (otd 2612)	•	3069

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Atascosa County (Wildcat)—		
Briggs-Atascosa, Stevens 1	Junk	845
Camp & Sons, Bailey 1	•	2403
Bexar County (Gas Ridge)—		
Southwest, Covel 25	2½	460
Covel 28	3	476
Caldwell County (Wildcat)—		
R. R. Ogden, Chamberlain 1	•	2052
Frio County (Pearsall)—		
Falcon, Seaboard, Dunwoody, Halff & Oppenheimer 2	95	4326
Milam County (Wildcat)—		
Hamman, Powers 1	•	2455
Val Verde County (Vinnegarrone)—		
Donzis & Shefts, Whitehead & Wardlow 2	3	306
Williamson County (Wildcat)—		
H. G. Dickinson, Pope 1	•	960
George Gage, Hanson 1	•	1814

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Calhoun County—		
H. B. Scott, McDonald 1	¶0.14	2239
Brannon & Weaver, McCune 1	¶0.95	2077
Clay County—		
Pittsburgh & W. Va., Goad 7818..	•	2387
Gilmer County—		
Pittsburgh & W. Va., Wolfe 7629..	¶0.02	1917
Hunt & Adams, Kennedy 1	¶0.03	2131
Kanawa County—		
Godfrey L. Cabot, Bailey 1	¶2.83	4979
Columbian, Fields 1	¶2.78	5409
Brawley-Reid, Lance 1	¶0.58	5305
Lincoln County—		
United, Holton 2289	¶0.04	3501
OLD WELLS DEEPENED		
Monongalia County—		
Hope, Hawkins 3864	•	2394
Pleasants County—		
Don E. White et al, Myers Heirs 1	•	1670
Putnam County—		
Teavee Oil, Foster 1	¶0.37	2160
Ritchie County—		
William Collins, Stephens 1	¶0.05	2175
Clem S. Morris, Rexroad Heirs 2..	•	2442
Roane County—		
Am. Oil Dev. Co., Riley 1	15	1812

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WILDCAT REPORT
New Starts and Completions

CALIFORNIA
FIRST REPORTS

Fresno County—Seaboard Oil Corp.-T. W. A.-Union Oil Co.'s STU 88-13; 13-15-17. Lcn. Raisin City area.

Los Angeles County—A. J. O'Dell's Val Verde Comm. 1; 9-4-17 lcn. Castais area.

COMPLETIONS

Kern County — Tide Water Associated's Quinn Ranch 46; 8-25-27, abnd 3786 ft in granite; vedder 3196 ft; Walker 2320 ft, and granite 3756 ft.

ILLINOIS
FIRST REPORTS

Clay County—K. Kilpatrick's Keck 1, c ne ne sw 36-4n-7e, dr. Carl Robinson's Coggan 1, 60 ft n of sw sw sw 17-4n-8e, lcn. Carl Robinson's Ditter 1, sw nw sw 18-4n-8e, lcn.

Edgar County—Western Leonard's Baker 1, nw c nw 19-15n-13w, lcn.

Franklin County—Oil Carrier Inc.'s Casper 1, se sw nw 1-6s-2e, lcn. Mohawk Drlg. Co.'s Stewart 1, ne c of sec 11-6s-2e, dr.

Gallatin County—Delta Drlg. Co.'s Minier 1, ne ne nw 28-8s-9e, lcn. Oil Management Inc.'s Egyptian T&T Co.'s A-1, sw sw sw 17-8s-10e, dr.

Hamilton County—Cameron Bros.' Lockwood 1, c ne ne nw 23-6s-5e, dr.

Jackson County—Charles Mever et al's Williams 1, ne ne ne 9-8s-1w, dr.

Jasper County—Pure's Kessler "A" 1, c e½ ne sw 15-6n-10e, lcn.

Lawrence County—Midwest Dev. Co.'s All States Life Ins. Co. 1, 38 ft e of se se nw 22-2n-11w, dr.

Marion County—C. C. Nye's Long 1, c w½ nw nw 27-3n-4e, lcn.

Wabash County—Hays Drlg Co.'s Kieffer 1, ne ne se 35-1n-13w, lcn.

Washington County—Reward Oil Co.'s Nolting 1, se sw sw 34-1n-1w, comp.

Wayne County—Jahlonski et al's Tenney 1, c s½ se nw 21-1n-6e, lcn. Pioneer Drlg. Co. et al's Williamson 1, c s½ sw ne 22-1n-6e, dr.

White County—Sinclair-Wyoming's Smith 1, se nw nw 24-4s-10e, lcn.

Williamson County—Jack Brown's 1st Nat'l. Bank 1, sw se nw 36-8s-3w, dr. Bruce Martin's Guaranty Trust Co.'s 1, nw se sw 28-3s-4e, lcn.

COMPLETIONS

Bond County—Fox & Conray's Beuchle 1, sw sw nw 11-4n-2w, abnd 1360 ft.

Clay County—Delta Prod.'s Crackel 1, s½ sw se 34-4n-8e, abnd 3150 ft. F. E. Harvey et al's Phillips 1, nw ne se 18-11n-14w, abnd 1600 ft.

Gallatin County—R. B. Martin's Agnew 1, sw sw sw 26-8s-10e, abnd 3047 ft

Hamilton County—Holst Oils Corp.'s Faulkenheim 1, se ne nw ne 12-5s-7w, abnd 625 ft. Kingwood Oil et al's Johnson 1, ne se ne 14-6s-5e, Aux Vases 3162-3189 ft, td 3198 ft, 829 bbls oil.

Macon County—Eke's Patton 1, se se sw 1-17n-3e, abnd 1000 ft.

Marion County—Carter's Morgan 1, sw sw nw 5-4n-3e, abnd 2240 ft. Kingwood's McGuire 1, nw sw ne 20-2n-4e, abnd 2895 ft.

Richland County—Ohio Oil's Koertge 1, s½ se nw 29-2n-14w, McClos 3117 ft, td 3129 ft, flowed 1459 bbls oil, 37.4-gr.

Washington County—Reward Oil's Nolting 1, se sw sw 34-1n-1w, abnd 1557 ft.

Wayne County—Smith Pet.'s Martin 1, w½ nw se 28-1n-5e, abnd 3040 ft. Olson Drlg Co.'s Porter 1, w½ nw se 36-1n-6e, McClos 3194-3197 ft, 3201-3203 ft, td 3207 ft, flowed 690 bbls oil. Pure Oil's Johnson "A" 1, c w½ se ne 12-1s-7e, McClos 3135-3138 ft, 134 bbls water, 62 bbls oil.

White County—Shaffer-Stoll's Aud 1, sw ne se 27-6s-9e, Weller 2669-2678 ft, td 2685 ft, 32 bbls oil. Ryan Oil's Westergard 1, nw nw nw 30-6s-11e, abnd 2962 ft.

INDIANA
FIRST REPORTS

Madison County—Arthur Laws' McAllister 1, 50 ft e of c s½ sw 25-18n-7e, lcn.

Posey County—Morganstern Oil Corp.'s Mentzer 1, c sw nw ne 34-5s-14w, lcn. J. H. Guinn et al's Allyn 1, c nw ne sw 25-7s-13w, dr.

COMPLETIONS

Posey County — Whisenant & Trenchard, Bundy 1, c sw ne se 17-6s-14w, abnd 2825 ft. Central States Oil's Seifert "C" 1, nw nw nw 30-6s-12w, Mansfield 1079-1105 ft, new horizon Carbon, td 1105 ft, 82 bbls oil.

Spencer County—Jess Wilson et al's McCoy 1, ne ne ne 12-7s-8w, abnd 1075 ft.

KANSAS
FIRST REPORTS

Barton County—Helmerich & Payne's Unruh 1, nw nw ne 30-20s-15w, cellar.

Ellis County—Falcon-Seaboard Oil's Wasinger 1, ne ne se 20-11s-18w, lcn.

Jefferson County—Sherrod et al's Carr 1, c sw ne 13-10s-20e, ponds.

Rooks County—E. V. Jackson's Chavanne 1, e ne ne 3-10s-19e, drlg 150 ft.

Trego County—Aylward Prod. & Barnett Drlg.'s Schaefer 1, sw sw ne 10-12s-21w, BRR.

COMPLETIONS

Barton County—Helmerich & Payne's Unruh 1, c e½ ne nw 16-20s-15w, Congl. 3708 ft, Arb. 3720 ft, td 3872 ft, pb 3845 ft, abnd.

Edwards County—Continental Oil's Beatty 1, c wl sw 35-25s-20w, Topeka 3630 ft, Lansing 4095 ft, Miss. 4710 ft, Viola 4935 ft, Simpson Sand 5090 ft, Arbuckle 5128 ft, abnd 5256 ft.

Ellis County—Darby Pet.'s Giebler 1, c e½ nw se 27-13s-20w, Any. 1501 ft, Cem. 1520 ft, Ft. Riley 2320 ft, Meva 2665 ft, Topeka 3210 ft, Lansing 3482 ft, Arbuckle 3832 ft, abnd 3899 ft.

Norton County—Cities Service Oil's Boucher 1, ne ne ne 13-4s-23s, Cem. 325 ft, Topeka 3070 ft, Lansing 3439 ft, Granite Wash 3724 ft, Granite 3810 ft, abnd 3813 ft.

Rice County—Rocket Drlg. et al's Shepherd 1, c w½ nw nw 6-21s-9w, Cem. 177 ft, Any. 310 ft, Lansing 2958 ft, Lansing 2981 ft, Congl. 3286 ft, Arbuckle 3375-3427 ft, abnd 3427 ft.

KENTUCKY
FIRST REPORTS

Breckenridge County—Porter Evans' Keenan Heirs 1 (*1*) 8-0-35, dr. Stewart & Snyder's Cosby 2 (*8*), 8-0-35, dr.

Henderson County—Minton et al's Sneed 1, 14-Q-20, lcn.

Ohio County—Andrew Teller's Moseley 1, 14-M-31, dr.

Union County—Smith & Toombs' Harris 1, 5-N-21, lcn. Sun Oil et al's Reyburn 1, 20-O-18, dr.

COMPLETIONS

Ballard County—Sam Granam et al's Carpenter 1, sw nw nw 18-F-6, abnd 600 ft.

Breckenridge County—Porter Evans' DeWitt 1, 15-O-35, abnd 620 ft.

Hancock County—W. A. Battel et al's Remington 2, 12-F-33, pb 442 ft, td 531 ft, 10 bbls oil.

Muhlenberg County—C. D. Lambert's Jones 1, 22-H-28, td 1213 ft, pay 810 ft, pb, td 1213 ft, 25,000 cubic ft gas. E. Evans et al's Clark 1, 19-H-31, abnd 420 ft.

SOUTH LOUISIANA
FIRST REPORTS

Cameron Parish—Superior's Paggie 1, Lakeside area, nw gas well, in sec 18-12s-4w, lcn.

Evangeline Parish—Texas Co.'s Danvois Land & Stone 1, 2 mi w Pine Prairie field, lcn, 9000-ft test.

St. Mary Parish—Texas Co.'s State-East Cote Blanche Bay 1, nw Bayou Sale field, lcn, 12,000-ft test.

COMPLETIONS

Allen Parish—W. T. Burton's Calcasieu National Bank 1, East Oberlin area, sec 21-8s-3w, td 10,921, abnd 6976-90 ft.

Terrebonne Parish—Gulf's Picou 1, Lapyrouse prospect, opens new field. Flowed 237 bbls 3/16-in choke, tp 3675, perf 10,942-46 ft, td 12,149.

MICHIGAN
FIRST REPORTS

Barry County—Chapman Oil Co.'s Woodman 1, nw sw se 12-2n-10w, rig.

Lake County—Ohio's Reiser 1, c s½ nw sw 6-18-11w, rig.

Mason County—Gordon Oil Co.'s Cartier 1, se se se 30-20n-15w, dr.

Mecosta County—American Prod. Co.'s Hudson 1, ne sw ne 19-15n-9w, rig.

Newaygo County—Southwest Dev. Co.'s Butler 1, ne nw nw 7-11n-11w, lcn.

COMPLETIONS

Arenac County—Don Rayburn's Ort 1, ne ne nw 20-19n-4e, Berea 1463 ft, td 1563 ft, 310,000 ft gas after shot; new pool. Socony Vacuum's Danckert 1, ne se nw 9-18n-4e, Dundee lime 2720 ft, abnd 4342 ft.

Clare County—Freeman Oil Co.'s Sutton 1, c e½ sw se 22-17n-4w, Dundee lime 3808 ft, abnd 3852 ft.

NEW MEXICO
COMPLETION

Eddy County—Neil Wills et al's Zorichak 1, c sw ne 6-20s-31e, elev 3446 ft, sul w 2130-36 ft, abnd 2142 ft.

OKLAHOMA
FIRST REPORTS

Caddo County—Amerada Pet.'s Sprague 1, c se nw 11-8n-12w, dk.

Carter County—Lloyd Sanders' Harmon 1, ne se sw 21-1s-2w, rrt.

Grady County—Ray Stephens, Inc.'s Johnston 1, c nw ne nw 18-5n-8w, dk.

Hughes County—Caroline O&G's Webster 1, sw sw sw 6-6n-10e, c & p.

Okfuskee County—Root & Anderson's Parlow 1, nw nw se 30-12n-8e, rig. Helmerich & Payne's Williams 1-A, nw nw se 16-11n-9e, rig.

Pontotoc County—B. H. Burns' Bogan 1-A, se ne ne 29-4n-5e, lcn.

Seminole County—Sooner O&G Co.'s Pechacek 1, sw nw sw 12-10n-7e, c & p.

Stephens County—Geo. L. Pace's Downey 1, c nw ne se 11-3s-6w, rrt.

COMPLETIONS

Beckham County—H. C. McLaughlin's Stain 1, c sw sw 25-8n-25w, Anhy 1420 ft, Dolo 1844 ft, Granite Wash 2211 ft, abnd 2250 ft.

Comanche County—Wm. Atkinson's State 1, c sw sw sw 16-2n-9w, lime 3715-3764 ft, abnd 3764 ft.

Creek County—Chas. Balph et al's Starr 1, sw c sw 7-15n-8e, Prue 2540-57 ft, Dutcher 3315-20 ft, Viola 3735 ft, Dense 3762 ft, Dolomite 3767 ft, first Wilcox 3765-70 ft, second Wilcox 3792-3800 ft, shot 40 qts 3798-3816, td 3817 ft, flow 200 bbls oil.

Garvin County—Doley & Ramsey Pet.'s McCrumman 1, c e se nw 24-4n-1w, Belle City 3392 ft, Dense lime 4111 ft, Dolomite 4220-40 ft, Green shale 4365-4403 ft, Viola 4515 ft, Simpson dense 4745 ft, Dolomite 4860 ft, first Wilcox 4910-45 ft, second Wilcox 4975 ft, abnd 5050 ft.

Lincoln County—Dunnett Oil et al's Dollison 1, nw se nw 33-15n-5e, Checkerboard 2740 ft, Oswego 3480 ft, Prue 3512 ft, Verdigris 3562 ft, abnd 3565 ft.

Okfuskee County—W. C. McBride's Long 1, se se sw 17-12n-10e, Booch 2689 ft, Gilcrease 2830 ft, Wapa 3069 ft, Cromwell 3085 ft, Woodford 3571 ft. Misener 3587 ft. Hunton 3588 ft, Sylvan 3662 ft, Viola 3737 ft, Wilcox 3789 ft, abnd 3801 ft.

Osage County—Ohio Osage's Osage 1, c e½ e½ nw 32-22n-9e, Oswego 1880 ft, Bartlesville 2238 ft, td 2250 ft, 4,250,000 cfg.

Pottawatomie County—J. F. Smith et al's Krouch 1, sw nw ne 11-7n-3e, Pawhuska 1540 ft, Belle City 2485 ft, Hogschooter 2880 ft, Checkerboard 3230 ft, Mayes 4280 ft, Woodford 4370 ft, Hunton 4483 ft, Sylvan 4710 ft, Viola 4814 ft, Dense 4865 ft, Dolomite 4906 ft, rec 5 ft, Wilcox sand, abnd.

Seminole County—Hall, Jordan et al's Jennings 1, c n½ se se 8-8n-8e, Hunton 3965 ft, Sylvan 4607 ft, Viola 4192 ft, Dense 4199 ft, Dolomite 4233 ft, first Wilcox 4279 ft, pb 4251 ft, pump 108 bbls oil and 200 bbls water. Mico O&G's Kidd 1, ne sw se 33-10n-8e, Cromwell 3716 ft, 21 shots 3385-3429 ft, pb 3424 ft from 3746 ft, abnd.

EAST TEXAS
FIRST REPORT

Upshur County—J. Z. Werby & Tune's Newsome & Cunliffe 1, Ahira Butler sur 1 mi n Coffeyville, rur.

COMPLETION

Navarro County—J. B. Daniel et al's Jones 1, north cor 100-ac tr, T. J. Jordan sur, elev 423 ft, Pecan chalk 1975-2145 ft, top Austin 2610 ft, abnd 3104 ft.

NORTH TEXAS
FIRST REPORTS

Cooke County—Metzner & Wallace's White 1, 1420 ft from s and 150 ft from e lines Geo. G. Steele sur A-1061, ½ mi n Hood, dr 1500 ft. Bill Russell et al's Powers 1, nwc tr, H. Nail sur A-790, lcn. C. D. Thornton & McKee's Berryman 1, nwc sec 22, John Barnett sur, lcn.

Foard County—Bruce Sullivan et al's McCoy 1, 1980 ft from w and 467 ft from n lines J. M. Seaton sur, lcn 6000-ft test.

Young County—Craig & Wilson's Clark 1, se sw TE&L sec 208, lcn.

COMPLETIONS

Archer County—Cochran & Cain's Minnich 1, sw part lse, Jose Ostane sur A-333, abnd 1450 ft.

Clay County—L. T. Burns et al's Wynn 1, se se lot 34, H. Williams sur A-704, 6½ mi s Blue Grove, new pool, dd from 5202 ft, top Bend 5375 ft, Mississippian 5891 ft, acidized 6000 gals saturation 5905-67 ft, flowed 76 bbls oil 3 hrs ¾-in. J. A. Coker et al's Barber 1, sec 31, B. Kellogg sur, abnd 1410 ft. E. C. Harlin Jr. et al's Owens 1, swc n½ west-135 ac, blk 50, Specht-McCutcheon sur, abnd 1350 ft.

Cooke County—W. R. Bourland et al's Drane Foundation 1, 1750 ft from s and 150 ft from w lines tr, E. Langford sur A-566, td 1752 ft, perforated pipe 1655-70 ft, tested water, abnd. E. N. Brockman & W. G. Phillips' Cotton, 1, 58-ac tr, B. Garner sur, A-396, abnd 1350 ft. Harvey Drl. Co. et al's Wilson-Ware 1, sec 40-ac lse, W. W. Crisp sur, new pay

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★

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Wilson pool, sand 2351-78 ft, td 2380 ft, pumped 96 bbls initial.

Denton County—D. S. Hager & Jones Drl. Co.'s Waide 1, sec of west-160 ac J. Pearson sur A-1050, abnd in schist 1939 ft.

Jack County—Hill & Hill, Inc.'s Kinder 1, sec A. B. Kuykendall-BS&F sec 4, top Palo Pinto 1070 ft, abnd 3380 ft.

WEST TEXAS

FIRST REPORTS

Crosby County—George Callihan & C. L. Wagner's E. M. Wahlenmaier 1, nec Waxahachie Tap Ry. sec 3, blk D-15, 20 mi sw Crosbytown, sp & sd.

Dawson County—Ray Albaugh et al's Handley 1, c se sw E. L. Ry. sec 36, blk M, mim.

COMPLETIONS

Andrews County—Fuhrman Pet. Corp.'s Seidel 1, sec PSL sec 6, blk A-42, elev 3241 ft, anhydrite 1630 ft, salt 1670-2820 ft, top Yates 2890 ft, brown lime 4215 ft, San Andres 4460 ft, abnd in water 4600 ft.

Ector County—Sinclair Prairie's Johnson Est. 1, nec se T&P sec 31, blk 42, T-1-S, abnd 4338 ft.

Reagan County — Amerada's University 1-R-A, c se ne sec 3, blk 48, discovery producer Barnhart prospect, elev 2768 ft, base salt 1370 ft, Yates frosted grains 1410 ft, brown lime 2160 ft, base black shale and top detrital 8905 ft, Ellenberger 8960 ft, saturation 9017-50 and 9060-66 ft, td 9294 ft in water, pb 9082 ft, used 5000 gals acid, official potential 187 bbls 44-gr oil 4 hrs, gas/oil ratio 2140/1, 1-in choke.

Terrell County—Texas Consolidated Oil Co.'s Holmes 1, nec GH&SA sec 14, blk A-2, abnd 2115 ft.

TEXAS PANHANDLE

COMPLETION

Potter County—R. & J. Drl. Co.'s Pavillard 1, sec sw AB&M sec 101, blk 2, elev 3638 ft, abnd in water 4455-71 ft.

WEST CENTRAL TEXAS

FIRST REPORTS

Brown County—R. H. Herring et al's Martin 1, swc ne ne HT&B sec 44, lcn.

Coleman County—Crabb & McNeil's Hanke 1, nwc 80-ac tr, north central part Wm. Mason sur 163, lcn.

Lampasas County—Robertson & McKissick's A. M. Smith 1, 1300 ft from n and 2950 ft from e lines D. W. Biggs sur 48, sp.

COMPLETIONS

Callahan County—P. H. Lewellyn et al's McLain 1, 1700 ft from e and 200 ft from n lines A. Cherry sur 332, abnd 602 ft. R. H. Roark et al's Harris 1, 5600 ft from s and 675 ft from e lines Jesse Dyson sur 751, abnd 342 ft.

Comanche County—C. D. Lane et al's Auvenshire 1, sec sw ne E.T. Ry. sec 45, abnd 1690 ft.

Eastland County—Bartrug & Bell's Crawley 1, 1000 ft from n and 220 ft from e lines lot 5, W. Van Norman sur, abnd 1007 ft.

Jones County—Danciger O&R, Inc.'s Reeves 1, 1600 ft from s and 330 ft from w lines e½ M. R. Longoria sur 258, elev 1720 ft, abnd 2730 ft.

SOUTHWEST TEXAS

FIRST REPORTS

Atascosa County — Briggs-Atascosa Co.'s Stevens 1, 20 f te No. 1, McColloch sur, replacement junked hole; woc 1504 ft.

Bee County—W. C. McBride & W. E. Rowe's Ulke 1, Williams sur, 4 mi w Skidmore, mi for 4800 ft test, Gorman Yoakam contractor.

Cameron County—Pure's Newberry 1, Skelton sur, 8 mi nw Point Isabel, loc 3500 ft test.

Caldwell County—R. Ogden's Hemphill 1, G. Pace sur, 5 mi nw Dale, sp 3000-ft test. C. E. Starr's Brown 1, Fishbaugh sur, 3 mi e Luling, loc 3300 ft test.

Duval County—H. Coquat et al's Garcia 2, Blk 2, Hinojosa Gr, 3 mi se Realitos, mi 6000-ft test. Humble's J. F. Welder 1, Ridder sur 222, 13½ mi nw San Diego, loc 4500-ft test. F. G. Gravis et al's Schallert 1, Sec 255, Palangana salt dome, mi 2900-ft test. Magnolia's DCRC 1-274, sec 274, 9 mi nw Freer, mi 2500-ft test.

Gonzales County—Texas Co.'s Hendershot 1, Doyle sur, 2 mi w Harwood, loc 500-ft test.

Hidalgo County—LaGloria's Riverside unit 1, LaBlanca Gr, 2 Donna, mi 9000-ft test, Gray & Wolfe contractor.

Jim Hogg County—Achning & Daubert's Gomez 1, Sur 105, 15 mi s Petroleum, loc 3000-ft test.

Jim Wells County—O. W. Killam's Rehmet 1, Parks sur, w of Wilcox disc, mi 4500-ft test. Gust Tsesmelis' Joseph 1, Sec 9, Wade sur, 2 mi 2 Camada fld, mi 6000-ft test.

Maverick County—Continental's Baker 1, River Gr, 25 mi se Eagle Pass, loc 1800-ft test. Wellington and Humble's Chittim 2, 18 mi ne Eagle Pass, Sec 129, ru 6000-ft test, Trinity Drillers, contractor.

San Patricio County—Henshaw Bros.'s Hancock 1, sec 13, Pauls sur, 2 mi s Sinton, ru 7200-ft test.

Webb County—Magnolia's DCRC-League 3, Lot 7, League 3, 15 mi w Greer, mir 3000-ft test.

Willacy County—Pan American's Garcia 1, near Willamar fld, Allen & Morris awd contract for 9000-ft test.

Wilson County—H. J. Haker's Myers 1, H. J. Arrocha Gr, 1 mi ne Floresville, mi 1800-ft test. Shell's Johnson 1, J. Reynolds sur, 5 mi ne Floresville, loc 800-ft test.

Zapata County—Ralph E. Fair's Flores 1, Por 36, 1 mi e Zapata, loc 6500-ft test.

COMPLETIONS

Atascosa County — Briggs-Atascosa Co.'s Stevens 1, McColloch sur, 4 mi se Verdi, stuck drill stem 845 ft, junked.

Bastrop County—John Camp & Sons' Bailey 1, E. Standifer sur, 1 mi s Elgin, abnd 2403 ft.

Bee County—Heard & Hayser's Huddleston 1, Blk 6, Sec 5-A, 4 mi se Beeville, abnd 4506 ft.

Caldwell County—R. R. Ogden's Chamberlain 1, Burleson sur, mi nw Dale, abnd 2052 ft.

Calhoun County—L. A. Johnson's McKamey 1, Gemmell sur, 4 mi sw Placedo, abnd 7011 ft.

Duval County — Joe Palmer's Parr 1, Gutierrez sur 13, 4 mi w San Diego, abnd 5410 ft.

Jackson County—Glufboard's Zapalac, Blk 24, Garcia Gr, 1 mi ne LaSalle, abnd 6507 ft.

Jim Hogg County—Bruce Clardy's Fast 1, Sur 53, 10 mi sw Hebbronville, abnd 4410 ft.

Jim Wells County—W. H. Spice's Reed & Lindsay 1, Lavaca Gr, 2½ mi sw Alice, abnd 5710 ft.

LaSalle County—E. J. McCurdy's Lupe 1, Tr 6, Blk C, Greer sur, 14 mi ne Artesia, abnd 5510 ft.

Live Oak County — Douglas, Holland & Smith's Hinton 1, McGloin sur, 1½ mi sw Oakville field, abnd 2812 ft. E. M. Jones' George West B-3, Sec 56, 4½ mi sw George West abnd 9733 ft; test showed gas distillate and water.

McMullen County—Transwestern Oil Co.'s Ferguson 1, Sec 104, 1½ mi sw S. Campana field, Pettus sand 3054-73 ft, comp thru perf 3067-70 ft, flowed 4000 mcf gas, 8 bpd oil 7/16 ch 950 lbs tp, 1010 lbs cp, td 3135 ft, 5½ 3135 ft; extends field.

Milam County—Hamman Oil & Roy. Co.'s Powers 1, Brewster sur, 3 mi e Rosebud, abnd 2455 ft.

Refugio County—R. S. Bond's Bartholomew 1, Sec 31, 3 mi nw Bayside, abnd 7009 ft.

San Patricio County—Seaboard's Lane 1, Odem, comp 221 bpd 36 gr 9/64-in ch, 1000 lbs tp, csg sealed, no water, gor 840/1; sand 5280-5330 ft, perf 5317-27 ft, td 5460 ft; new sand.

Starr County—Fannie Fitch et al's Bass 1, Sec 10, 3 mi n Los Olmos fld, temp abnd 1433 ft, may deepen later. F. A. Gillespie & Sons' de Guerra 1, sur 23, 40 mi nw Rio Grande City, abnd 2512 ft.

Williamson County—H. G. Dickinson's Pope 1, Tegge sur, 3½ mi sw Granger, abnd 960 ft. G. A. Gage's Hansen 1, Byerly sur, 5 mi w Coupland, abnd 1614 ft.

TEXAS GULF COAST

FIRST REPORTS

Brazoria County—Henrietta Vieman 1, Joseph White lge, ab 136, moving in materials, 9000-ft test.

Chambers County—Dick Schwab's Bethel Farrell 1, 100-acre lease, John Stell sur, lcn, 6700-ft test.

Ft. Bend County—Providence Oil and Federal Royalty's Anton Hruzek 1, Gail Borden, Jr., sur, lcn 8500-ft test.

COMPLETION

Ft. Bend County—Mackhank Petroleum's Armstrong 1, Boling area, abnd 7533 ft.

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MEN IN THE INDUSTRY'S NEWS

H. B. HURLEY, assistant general superintendent Fort Worth division, Continental Oil Company, has been promoted to general superintendent succeeding Horace B. Simcox who retired September 1 after 48 years of service in the oil industry. Hurley, native of Pennsylvania and son of a pioneer Allegheny district operator, has been assistant superintendent for three years.

Simcox served in all important producing districts in the United States. He drilled in Mexico before that country attained prominence as an oil source. He was born in Venango County, Pennsylvania, near the Drake discovery well. At 18 he held a full-time job as tool dresser for a contractor in the Bullion field. After volunteering for service in the Spanish-American War, he resumed work in West Virginia and Pennsylvania fields. At the turn of the century he was engaged by Mexican Petroleum & Liquid Fuel Company to head drilling crew in making a series of shallow wildcat tests near Vera Cruz.

Simcox returned to Pennsylvania in 1902 as gas company agent at Clarton. Two years later he joined J. M. Guffey interests as gauger at Spindletop. He was transferred to Louisiana in 1908 and placed in charge of crude shipments and scouting in Evangeline and Caddo fields. He moved to Shreveport in 1910 to become assistant general superintendent of Producers Oil Company, which became The Texas Company. He was promoted in 1916 to division superintendent of Rocky Mountain States with headquarters at Billings, Montana, and later at Denver.

He was transferred to Houston in 1920 as assistant to general manager of production. Four years later he became assistant superintendent of the Tulsa division. He resigned in May, 1924, to become general production manager of Sid Keoughn interests, then involved in consolidation of Mutual Oil Company and original Continental Oil Company. When the latter absorbed Marland Oil Company in 1929, Simcox became assistant general production manager. In 1932 he was placed in charge of California operations. He moved to Fort Worth in July, 1934, as division general superintendent.

Hurley worked in the Allegheny district as part-time pumper when he was 15, and was a seasoned lease man when he finished high school. He served in the Navy during the World War and upon his release in 1919 began working in the Tulsa office of Mid-Continent Petroleum Corporation, soon followed by a promotion to field work in northern Oklahoma. He severed this connection in September, 1926, to become drilling and production superintendent for Marland Oil Company in the Seminole field. Two years later he was transferred to Pyote to assume charge of the company's expanding operations in the West Texas Permian Basin.

Absorption of Marland Oil Company by Continental Oil Company in June, 1929, resulted in Hurley being promoted to superintendent of West Texas-New Mexico division with headquarters at Big Spring. He was moved to Fort Worth in October, 1938, to become assistant general superintendent of the division.

Hugh L. Johnston, district superintendent at Hobbs, New Mexico, has been transferred to Fort Worth to be assistant to Hurley. Monroe Purswell, assistant in charge at Hobbs, relieves Johnston, and A. B. Owen, drilling superintendent, takes over Purswell's former duties.

RIVERS REAVES, oil editor of Houston Press since March, 1939, joined the editorial staff of THE OIL WEEKLY effective September 1 as Gulf Coast news editor. Reaves majored in economics and journalism at Baylor University, receiving an A.B. degree in the class of 1937. He joined the Houston Press editorial staff in February of that year.

M. M. REDBURN, Ohio Oil Company, Lafayette, Louisiana, has been elected president of Lafayette Petroleum Club. Other officers are: W. K. Rainbolt, Sun Oil Company, vice president; James H. Doiron, Ohio Oil Company, secretary and treasurer. The club's next social event will be a first anniversary dinner-dance at Cedar Lane, Opelousas, September 12.

W. F. ROCKWELL, president of Pittsburgh Equitable Meter Company and Merco Nordstrom Valve Company, Pittsburgh, has been appointed national councillor of United States Chamber of Commerce to represent Association of Gas Appliance and Equipment Manufacturers.

R. N. McADAMS, assistant secretary and treasurer of Hercules Powder Company, Wilmington, Delaware, has been elected secretary, filling vacancy created by death of H. F. Smith. McAdams joined the company in 1906. William R. Stevens has been elected assistant treasurer. He joined the company in 1918. George B. Baylis is the new assistant secretary. He became associated with the company in 1918.

CARTER PANNILL, well known in international oil circles, is being transferred to Bogota, Colombia, as executive representative of Andian National Corporation and Tropical Oil Company. He is replacing Ray I. Dodson who has been transferred.

L. E. PRUITT, gas engineer, Sunray Oil Company, has been transferred from Texas Panhandle to Guthrie, Oklahoma, where he is doing special measurement work. Pruitt formerly represented a number of fee owners in Texas as measurement engineer.

LORD MARLEY, deputy speaker of the British House of Lords, will address the Texas Mid-Continent Oil and Gas Association convention at Beaumont, October 9-10, on "Oil and Victory." Marley formerly was Under Secretary of State of War and Lords-in-Waiting to King George V. For 10 years he has served as chairman of Parliament's Advisory Council of ORT, organization for settlement of refugees from Central and Eastern Europe. He served as staff officer for the third fleet in the first World War in which he won the Distinguished Service Cross. He is one of the few Labor members of the House of Lords.

CECIL MORGAN, formerly head of the legal staff of Standard Oil Company of Louisiana at Shreveport has been transferred to Baton Rouge to join the company's legal staff there. George Wilson, formerly counsel for Louisiana Conservation Commission, succeeds him at Shreveport.

FOSTER MORRELL, deputy supervisor of the United States Geological Survey's Mid-Continent region with offices at Tulsa, has been given the post of deputy supervisor of the Southwestern region with offices at Roswell, New Mexico. He will be associated with E. A. Hansen, supervisor, at Roswell. J. B. Mitchell, deputy supervisor at Denver, will succeed Morrell in the Tulsa office.

J. H. MacGAREGILL, director of marketing operations of Standard Oil Company of California, has been elected a vice president. He is also a member of the board of directors. F. S. Bryant, also a member of the board, has been named assistant to the president. Bryant has been active in the producing division of the company for many years and last year succeeded M. E. Lombardi as manager of production upon the latters retirement.

STUART E. BUCKLEY, engineer, Humble Oil & Refining Company, will address the East Texas Section of the American Institute of Mining & Metallurgical Engineers, at Tyler, Texas, on September 9. His subject will be "The Effect of Oil and Water Production on Reservoir Pressure in the East Texas Field."

WORTH B. ANDREWS, SR., Fort Worth operator, has returned after attending a reunion at the Michigan College of Mines & Technology at Houghton, Michigan.

LOS ANGELES CHAPTER OF NOMADS held its annuel golf tournament and barbecue August 14. Golf winners were J. E. Pueler, J. C. Ballagh, Jack Ballagh, Roland Smith, C. G. Davenport, D. G. Miller, L. E. Hogsett, J. Curts, P. J. (Percy) Hayes, W. T. (Bill)

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See Page 1325 in COMPOSITE CATALOG, 1941

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MEN IN THE INDUSTRY'S NEWS

Archer, J. A. Wilcox, Walter Greenfield, Dave Bradbury, A. G. Haglund, Al Godfrey, B. Bronzan, P. J. Hayes, Hans Ross, Lee Laird, George Trembley, J. A. Wilcox, Bob Humphreys, Morris Smith, Charles Schultz, H. F. Schlittler.

S. L. WESTLAKE has been granted a leave of absence as chief engineer for Ajax Pipe Line Corporation, Tulsa, to become assistant petroleum coordinator. He will serve as director of pipe-line coordination under Deputy Coordinator Ralph K. Davies. Westlake assisted in construction of Standard Oil Company of New Jersey's crude line from Portland, Maine, to Montreal, Quebec, and also aided in mapping Plantation Pipe Line Company's gasoline line from Baton Rouge, Louisiana, to Greensboro, North Carolina.

O. M. "CURLEY" WORKING, president of Service Oilfield Supply Company, Inc., Los Angeles, is on a field trip through the Mid-Continent.

PAT DUNCAN, former chief scout for Magnolia Petroleum Company who has been buying leases for the company in North Dakota the past year, is vacationing at Dallas, his former home.

C. C. HUTCHENS, former scout and land man for Skelly Oil Company, is now superintendent of the land department of Cameron Oil Company, Evansville, Indiana.

GEORGE F. HAMMAN, 31, vice president of Hamman Exploration Company, Houston, was killed September 1 when the airplane he was piloting crashed in a marsh near Hoskins Mound, Brazoria County. Hamman was a native of Houston, and graduated from Harvard University in 1932, where he received his A.B. degree and majored in geophysics. With his brother, John H. Hamman, Jr., he was responsible for discovery of the Hamman oil field south of Bay City, Texas, and was active in its development and in the construction of a refinery in that field.

JOHN MORSE, assistant manager of Fairbanks, Morse & Company's San Francisco branch since last April, was killed in an automobile accident August 22 in San Francisco. He was the son of Colonel Robert H. Morse, president of the company. Young Morse, 25, was graduated from Yale in 1937. He resigned from the Navy in April because of an eye deficiency.

CLARENCE H. KENNEDY, vice president in charge of sales, The Kennedy Valve Manufacturing Company, Elmira, New York, died in Elmira July 21. A graduate of Cornell University, he spent his entire business career with the company. He was successively manager of the New York branch, company sales manager and has been vice president since 1929.

JAMES A. OWENS, 57, employe of Mid-Continent Drilling Company and a resident of Dallas, died August 29 at Gainesville, Texas, from injuries received in an auto accident.

HAROLD G. SMITH, former chief engineer of automotive division of The Buda Company, Harvey, Illinois, has been promoted to executive engineer in charge of all engineering of automotive, marine and industrial engine and radial diesel engine division. He is a member of S.A.E., of S.A.M.E., and is on engine standards committee of Society of Automotive Engineers.

DON NORDING, research geologist for Shell Oil Company at Wichita, has been transferred to Tulsa and made assistant district geologist under R. E. Shutt.

MYATT S. LIPSCOMBE, geologist and landman for Mid-State Oil Corporation, Fort Worth, has been transferred to Wichita to head a new division office.

WES CAUGHRON, scout for Gulf Oil Corporation in New Mexico, has been transferred to Oklahoma.

WALTER HEATHMAN, geologist for Union Oil Company of California, has been transferred to Wichita to head a new district office with the firm's entry into the Mid-Continent area.

E. E. SPICER, formerly with Frick-Reid Supply Corporation and with Buda Engine Company, has been named Kansas sales representative for Bradford Motor Works, Bradford, Pennsylvania.

MORE READERS
MORE MEN IN THE DRILLING-PRODUCING INDUSTRY SUBSCRIBE TO THE OIL WEEKLY THAN TO ANY OTHER OIL PAPER.
BE SURE TO RENEW YOUR SUBSCRIPTION PROMPTLY

40 Pounds of JUNK RECOVERED by CAVINS!

Yes, we got several rock bit cones, a piece of slip segment and a ball peen hammer, then broke up and recovered a bridge plug . . . all from this hole, with the Cavins Automatic Hydraulic Suction Bailer. Jobs like this are all in a day's work with Cavins.

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No valves "too far gone" for us to repair and put in shape to give you much more service.

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LETTERS

Comments on Recent Editorials

DEAR MR. DUDLEY:

I have just read your splendid editorial which appeared in the August 25 issue of THE OIL WEEKLY. Your summary of the belief and reasoning of a great many of the American people are, in my opinion, absolutely correct. Since the Army maneuvers started in Louisiana I have made it a point to contact as many men in uniform as I possibly can. I have been making a sincere effort to find out what is the morale of our soldiers and I can say to you with all sincerity that I am appalled at the attitude of our men in uniform, both the enlisted men and the officers. Having served in the first World War, I am familiar with the usual type of beefing that goes on in the Army, however, this is an entirely different brand than any I have heretofore experienced. Your editorial correctly summarizes the attitude of the majority of the men I have talked to with regard to the government's handling of the union labor situation, as well as their attitude toward being called upon to continue their training without proper equipment.

The most serious complaint I hear among the officers personnel, particularly in National Guard units, has to do with the advancement of officers rank due to political influence. I have heard some unusually severe criticisms from Texas National Guard officers on this point. I sincerely hope that you will continue to use your editorial influence for the improvement of these conditions during the present emergency.

R. J. O'BRIEN,
O'Brien Bros., Inc.,
Shreveport, Louisiana.

DEAR MR. DUDLEY:

Your "Oil-for-Britain" article in THE OIL WEEKLY of August 18 ,1941, has been read with interest and I wish to take this opportunity of expressing to you my deep appreciation for the fair treatment which has been accorded this undertaking by your staff, and for your confidence in my sincerity of purpose.

I have always hoped that the plan would be brought to a successful termination without evoking a controversy in the oil industry. Quite naturally, I regret that a larger donation was not made on Oil-for-Britain day although I believe that you will appreciate my attempt to have participation in the project entirely optional.

JOHN F. CAMP,
San Antonio, Texas.

DEAR MR. DUDLEY:

I was much pleased with your editorial "A Job to Be Done" in the current issue of THE OIL WEEKLY. If you recollect, I wrote you about a year ago along the same lines.

PAUL B. WILLIAMSON,
New Orleans, Louisiana.

DEAR MR. DUDLEY:

I want to extend my sincere appreciation of your editorial in THE OIL WEEKLY on "Whose Emergency?"

JOHN A. DEERING,
Houston, Texas.

NO TUBING means Less Initial Cost

With a LAMTEX Casing Pump in your well you not only ELIMINATE TUBING but also a lot of trouble that's taken for granted with a conventional pump. A LAMTEX will pump more oil in greater volume, with less power and less wear and tear on other equipment. Allow us to explain more fully. "See our ad—page 1392, 1941 Composite."

Supply stores everywhere glad to furnish information and adequate stocks available. Rocky Mountains now covered and many satisfied users.

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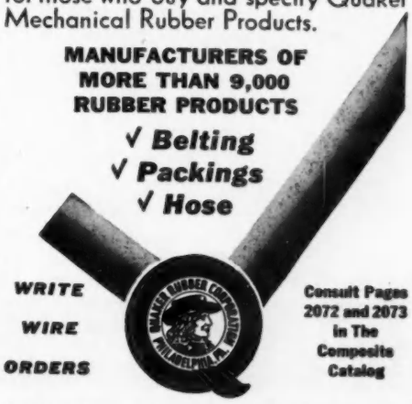

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Consult Pages 2072 and 2073 in The Composite Catalog

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Squeaks from the Bull Wheel

Rare Distinction

Because of a slight temporary derangement, a man was briefly confined to the asylum; but, on his liberation, was given, according to custom, written assurance of two doctors that he was sane and safe to be at large.

Some time later he became embroiled in an argument with some friends, whereupon one of their number, remembering his incarceration in the asylum, told him he was "daft."

"Daft," echoed he, plunging his hand into his pocket. "Daft! blast ye! Look here, I can show two certificates that I'm wise, and there's not another man here can produce one."

The rest was silence.

Knighthood in Flower

Hast Sir Gordon yet asked thee for thy hand in wedlock?

Not yet, mother, but the Knight is young.

WELL, maybe it *is* stretching a point to say that a baby could handle braking on a drilling rig equipped with J-M 420 Lining. But it *is* a fact that brake operation is far easier and more economical when you use this tougher, smoother working lining.

The proof lies in the number of manufacturers using J-M 420 as factory equipment . . . in the steadily growing list of operators using it for replacement. Try it yourself. You'll find that it delivers unusually even feed-off, higher braking efficiency, longer life, less rim scoring.

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Hickety hank, hickety hank,
Honest Hal has bought a tank.
Put it on his private farm,
Ready for a gas alarm.
Station wagon, limousine,
Tractors all use gasoline.
Conferes of Honest Hal,
Heeding warnings of their pal
Walk to work, or use a bus,
Saving gasoline's a "must."
Honest Hal is in a fix,
Some accusing him of tricks.
Still, it is no trick to buy
Tanks and gasoline supply.
In defense of Honest Hal,
Who's a Presidential pal,
If one lives so far from town,
Gas and tanks must be around.

In Hollywood

Who was that lady you just bowed to?

She was the second wife of the third husband of my first wife.

Bettered!

"It's astounding how mean some people can be. On a trip recently I had with me two guests who evidently were aware of my reputation as an angler. Before starting, they proposed that the first one who caught a fish must treat the crowd."

"I agreed but do you know those two fellows both had a bite and were too mean to pull them up."

"I suppose you lost."

"Oh, no. I didn't have any bait on my hook!"

Tsk Tsk

"Aren't you afraid of losing control of the car?"

"Yeah. I'm two instalments behind already."

Unemployment Problem

"Hey, picket, your sign's got nothing on it."

"Yeah, I know; I'm looking for a sponsor."

An Eye for Business

If you are good, I'll give you a nice bright new penny.

A dirty old quarter will do.

Humiliating Ignorance

Ah sho' has trouble gettin' along wid ma wife. All she do is igno' me.

Ah kin feel foh youall, 'cause if dey is anything Ah dislikes it's ignorance.

Labor-Saving Idea

Yes, sir, I've got my husband where he eats out of my hand.

Saves a lot of dish washing, doesn't it?

Acquitted

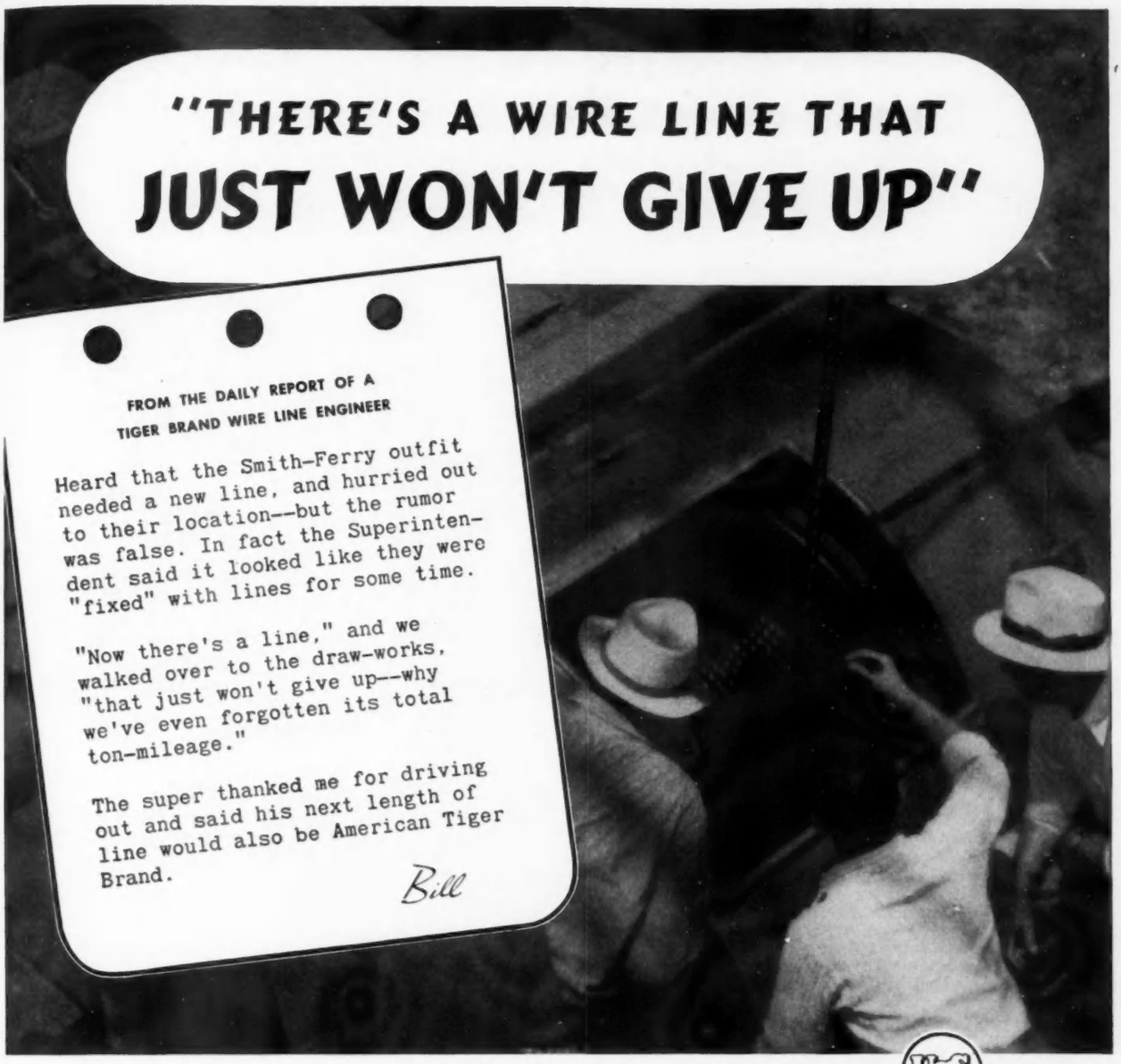
After the prosecution had made presentation, the defense attorney arose and said, "Michael Dougherty, take the stand."

Mike, with big red nose, unshaven face, bleary eyes, and a general appearance of dilapidation and dejection, came forward.

"Michael Dougherty, look upon the jury. Jury, look upon Michael Dougherty."

After the jury had taken a good, long look at the prisoner, his attorney said, "Gentlemen of the jury, do you mean to say to this court and to me that you honestly and truly believe that Michael Dougherty, if he had a pint of whisky, would sell it?"

"THERE'S A WIRE LINE THAT JUST WON'T GIVE UP"



FROM THE DAILY REPORT OF A
TIGER BRAND WIRE LINE ENGINEER

Heard that the Smith-Ferry outfit needed a new line, and hurried out to their location--but the rumor was false. In fact the Superintendent said it looked like they were "fixed" with lines for some time.

"Now there's a line," and we walked over to the draw-works, "that just won't give up--why we've even forgotten its total ton-mileage."

The super thanked me for driving out and said his next length of line would also be American Tiger Brand.

Bill

IF you figure you're not getting the right service out of your wire lines, call in an American Tiger Brand Wire Line Engineer — these men know how to help you stretch your wire line dollar. And they should know—they're right in the field—they run across all sorts of situations every day. They live and breathe problems such as you might have. They know how much punishment a wire line has to take, and how the men on the job can lengthen wire line life.

Next time you need help—call in a Tiger Brand Wire Line Engineer. He has no axe to grind. He's not interested in promoting one construction or grade over any other—he'll just be interested in your particular problem. Write today for complete information.

AMERICAN
Tiger Brand
WIRE LINES
Excellay Preformed

LOOK FOR THE TIGER
Buy wire lines from the distributor who displays this sign.

AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York

COLUMBIA STEEL COMPANY
San Francisco

United States Steel Export Company, New York

UNITED STATES STEEL

NOTES FOR THE Equipment Buyer and User

Pillow Blocks

DODGE MANUFACTURING CORPORATION

A new line of Sleevoil Precision Babbitted Pillow Blocks for industrial service has been announced by Dodge Manufacturing Corporation, Mishawaka, Indiana. The blocks, in plain and water-cooled types in shaft sizes from 1-7/16 inches to 8 inches inclusive, are designed for wide range of applications where babbitted bearing is required. Applications would include fans, blowers and marine propeller shafts.

Dodge Block

Lubrication is provided by use of "T" section brass oiling rings. Single rings are furnished in sizes up to 3-7/16 inches inclusive, and two rings are used in larger sizes. Brass oil gauge is provided which can be placed on either side of bearing and by use of additional ½-inch pipe can be extended to any distance from bearing. Bases have drain holes in each end and caps are provided with inspection hole and cover. Bearings are self-aligning, furnished in either expansion or non-expansion types.

Effective sealing against dirt of escape of lubricant is provided by special seals held onto shaft by garter springs so that they revolve with shaft and give effect of piston ring seals.

Sleevoil Water-Cooled Pillow Blocks are identical in design and construction with plain type except for water cooled feature which makes them adaptable for service where elevated temperatures, heavy loads or rubbing speeds are encountered.

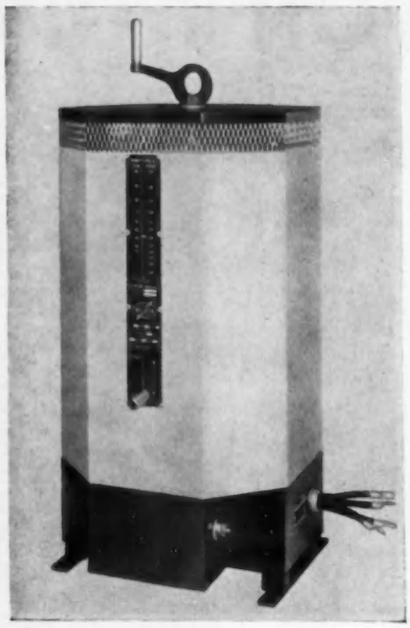
Transformer Arc Welders

WILSON WELDER & METALS COMPANY

A new line of AC Transformer Welders in 300, 500, 750 and 1000 ampere capacities has just been announced by Wilson Welder and Metals Company, 60 East 42nd Street, New York.

Known as Model TW, these welders are self-contained units designed to meet the heavy arc welding needs of shipyards, railroads and steel mills. For 220, 440 or 550 volts, 25 or 60 cycle current. When arranged for 220 and 440 volt operation, single phase, either voltage can be brought into use by a reconnection of the leads which are brought outside the unit.

The new welders have a wide range of current output and continuous stepless current regulation is provided over the entire range by means of a hand crank on top of the machine. This crank



Wilson Model TW Welder

makes it possible to rapidly shift the setting as changes are made from one class of work to another.

Model TW conforms to N.E.M.A. requirements, and is said to operate cooler and therefore last longer, because of divided construction of the coils which allows greater surface area to be exposed to the cooling air. All coil covering is spun glass fibre, heat-resistant, Class BB insulation, providing trouble-free operation even if used continuously at maximum settings.

On 60-cycle units, all sizes are fan cooled except the 300-ampere size, which is cooled by natural draft. On 25-cycle units, all sizes are fan cooled. The 60-cycle units have high-and low-range switches, while the 25-cycle units have only one range. This low-range switch provides current adjustments on the 500-ampere size from 40 to 650 amperes. Power factor correction is included in all models for 60-cycle operation except the 300-ampere size. Welders built for 25-cycle operation do not have power factor corrected. Efficiency of all the TW units is approximately 80 to 85 percent, an announcement says.

Steel Flooring

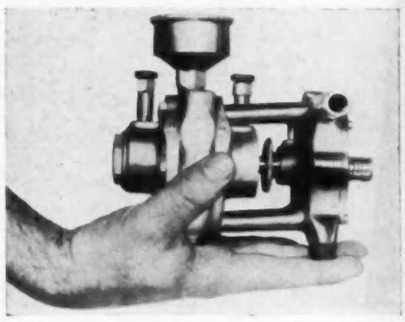
Open Steel Flooring Institute, American Bank Building, Pittsburgh, has issued a 16-page handbook on "New Ideas in Functional Floor Design," giving detail technical and working knowledge of several types of open steel floor grating, riveted, welded and interlocked, manufactured by its members. Included are a table of safe loads based on government specifications, a typical hypothetical floor layout, detailed clipping or fastening diagrams, and suggested specifications. Illustrations of open steel flooring installations show range of application of the product.

Air Powered Pump

EASTERN ENGINEERING COMPANY

Addition of a new model to its line of midget size pumps has been announced by Eastern Engineering Company, New Haven, Conn. Designated as Eastern Model "D" Air Powered Pump its main features are: air powered motor makes it explosion proof; variable performance (controlled by varying speed of air motor); performance characteristics in relation to size.

Pump may be used in all industrial, pilot plants, laboratory and experimental



Eastern Pump

applications where explosion proof unit is necessary and where compressed air is available. Its size is 5½ x 6 x 7 inches and weighs 10 pounds. Motor is ¼-horsepower, ball bearing air motor (vane type).

Units are available in stainless steel, monel metal, chromium-plated bronze, brass, cast iron, and other alloys.

Chain Belt Company Celebrating Fiftieth Anniversary

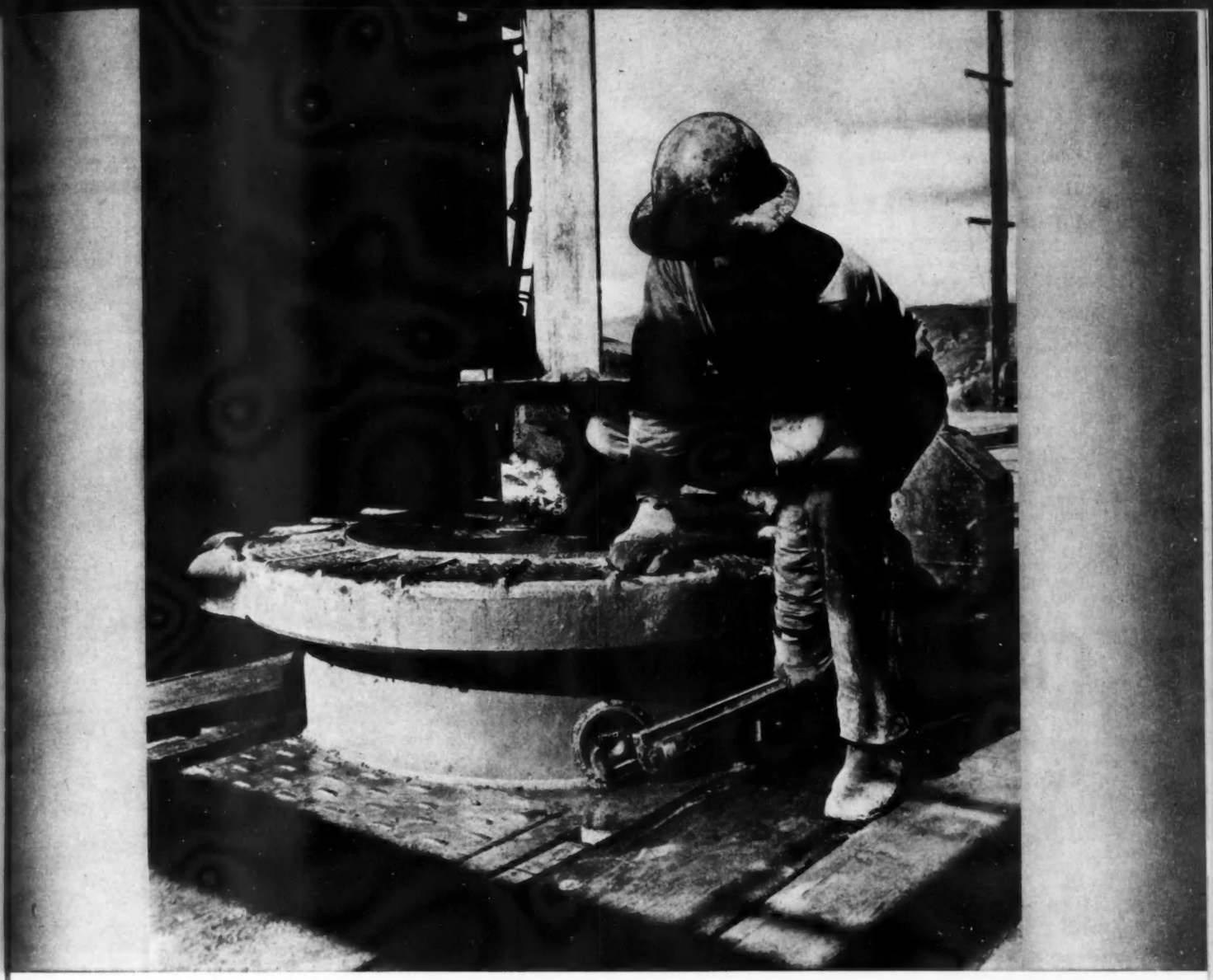
Chain Belt Company, Milwaukee, Wis., will celebrate its 50th anniversary September 9. Founded in 1891 for purpose of producing an improved type of detachable chain, then used largely on agricultural machinery, it has since expanded its activities and is now a large producer of chain belts, construction machinery, elevating and conveying equipment and other related products.

From a small beginning, through research, development and production of new products, the company has extended its market as well as its lines.

Voltage Relays

Relays to protect 115- to 460-volt, 60-cycle circuits or apparatus against voltage changes of any predetermined value are described in a new 8-page bulletin announced by Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

Distinctive features, construction and operation are discussed. Voltage-time curves show percent of maximum closing voltage at each setting of the relay time lever. Wiring diagrams show physical arrangement of coils and contacts as well as electrical connections. Outline drawings give overall dimen-



NO BED OF ROSES

Even with things going smoothly the rotary pinion shaft has no sinecure. And when plugging the bit in a hard formation brings stalling shocks, a shaft that hasn't the stuff in it points a drilling operation straight for the red ink.

Here, as in many another piece of equipment, Molybdenum Steel is proving in day by day service that it has what it takes to keep drilling costs down. Rotary pinion shafts made of Chrome-Moly (SAE 4140) steel have the torsional, fatigue and tensile strength to take trouble in their stride — they are dependable.

The various Molybdenum Steels and their applications in drilling and pumping equipment are fully described, with technical data, in our book "Molybdenum in Oil Production." It is sent free on request.

CLIMAX FURNISHES AUTHORITATIVE ENGINEERING DATA ON MOLYBDENUM APPLICATIONS.
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sions and necessary mounting data. A tabulation lists styles and prices for 25- and 60-cycle relays for operation on 115- to 460-volt circuits.

V-Belt Drives

Allis-Chalmers Manufacturing Company, Milwaukee, has just issued a 12-page bulletin, No. B-6051-B, describing its line of Texrope drives. Included are the new Texrope Super-7 V-belt, Duro-Brace Texsteel and True-Groove Tex-drive sheaves, Vari-Pitch sheaves, FHP adjustable sheaves, and Vari-Pitch speed-changers. A new Texrope drive selection table makes it easy to figure the proper size of drive for each application.

Centrifugal Pumps

Allis-Chalmers Manufacturing Company, Milwaukee, has issued an 8-page bulletin, B-6059, which describes and illustrates pumps built by the company. Included are pumps for handling capacities from 10 to 200,000 gallons per minute and for heads ranging from 10 to 4200 feet. Also, single- and double-suction single-stage pumps, double-suction multi-stage pumps, open runner paper stock pumps, and axial flow pumps.

Lane-Wells Company to Handle Export Business from Home Office

All export business of Lane-Wells Company, formerly handled from New York, will be conducted from the company's general offices, 5610 South Soto Street, Los Angeles, California, effective September 1, M. E. Montrose, Lane-Wells vice president and general sales manager, has announced.

How to Apply Flow Meters Profitably

Originating as a flow meter catalog describing the Cochrane Corporation line of flow meters, "Flow Meters by Cochrane" has grown to a 52-page handbook of instrument application to steam; water; air; gas; and viscous, volatile, and corrosive fluid measurement. Considerable space is devoted to the importance of flow records in the efficient operation of boiler and turbine rooms and various process departments.

Thorough description of important operating details are given on ten different types of instruments including the new Linameter for difficult-to-measure fluids, the ring-balance meter for low-pressure gases, electrical and mechanical weir meters, and liquid level instruments. The construction features of the friction-free electric flow meter and the high-torque mechanical flow meter are explained in great detail with full-size illustrations of these instruments showing the high readability of the 12-inch chart record, indicating scale, and totalizing integrator.

Special sections are devoted to control applications, dual range recorders, detached instruments, and summation meters. A list of available charts, with tabulated descriptions of each, is included as a guide to Cochrane meter users. For a copy of this new Flow Meter book, write Cochrane Corporation, 17th Street and Allegheny Avenue, Philadelphia, Pa., for Publication 3010.

Valves

Reading-Pratt & Cady Division, American Chain & Cable Company, Reading, Pennsylvania, has issued a folder on its Union bonnet bronze globe and angle valves, covering improvements on the line. Three types of seatings are available in the valves, regrinding, semi-plug and full-plug; as well as three types of seating materials, bronze, copper-nickel alloy and stainless steel (12-14 percent chromium). Steam pressure ratings range from 150 pounds, and temperature ratings up to 550°.

Gear Units

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania, has issued Folder F-8603, describing integral gear units for generators, compressors, pumps, line shafts and other equipment to be driven slower than efficient turbine speeds, Gear construction, bearings and forced-feed lubrication are among features explained. A drawing shows position of parts to make the explanation easy to follow, and installation photographs show typical gear unit applications.

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